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THE  
DISEASES OF WOMEN



LONDON : PRINTED BY  
SPOTTISWOODE AND CO , NEW-STREET SQUARE ,  
AND PARLIAMENT STREET



THE  
PATHOLOGY, DIAGNOSIS, AND TREATMENT  
OF THE  
DISEASES OF WOMEN

BY  
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SOCIETY OF BOSTON; HONORARY FELLOW OF THE  
MEDICAL SOCIETY OF HELSINGFORS



*FOURTH EDITION*

*REVISED, ENLARGED, AND IN GREAT PART REWRITTEN*

WITH NUMEROUS ILLUSTRATIONS

LONDON  
LONGMANS, GREEN, AND CO.  
1882





TO  
THE FELLOWS  
OF THE  
OBSTETRICAL SOCIETY OF LONDON

THIS WORK  
IS RESPECTFULLY DEDICATED  
BY  
THEIR FELLOW-WORKER

*THE AUTHOR*





# PREFACE

TO

## THE FOURTH EDITION

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TEN YEARS have elapsed since the last edition of this work was published. What I have gained from observation and experience during those ten years has been here faithfully and truly set down.

In the last (third) edition of this work I endeavoured to enunciate and demonstrate certain general principles as to the pathology of diseases of the uterus, more especially to show that the changes in the shape and position of the uterus are directly or indirectly responsible for the sufferings and discomforts attendant on the affections peculiar to the female sex. The conclusions expressed ten years ago have been tested and verified by subsequent experience; and additional facts and observations on this subject will be found in this volume.

I have, however, in the present edition advanced a step further, and have explained, to my own satisfaction at all events, how and why it is that changes in the shape and position of the uterus are so liable to occur: what, in short, are their predisposing causes. An extended experience has enabled me to submit a further and, as I consider, a most important generalisation on the subject. What I have to say, in fact, amounts to this; that alterations in the shape and position of the uterus are rarely witnessed except in individuals whose general strength has become seriously impaired by a systematic, and often a lengthened, practice of taking little food. The term 'chronic starvation' appropriately designates this condition; and a long course of observations has convinced me that it is a most important factor in the production of the class of diseases above alluded to.

These considerations are fundamental in regard to the subject of the pathology of the uterus, and they underlie all that is to be said, or that can be said, on the matter. In the present work, much attention has been bestowed on the development and application of the above-mentioned principle, which is, of course, nothing more or less than this—the dependence of *local* ailments on *general* ones. If there be nothing very novel in this doctrine, it may be at all events of some service to give it, in a more precise manner than has hitherto been attempted, a definite application to the class of maladies treated of in this work.

The question as to the nature of Hysteria and Hystero-epilepsy has much occupied my attention, and the present volume contains a collection of observations on the subject, together with deductions, which I submit to the candid and dispassionate consideration of my readers.

An important class of cases are those in which Pregnancy is associated with Flexion of the Uterus. This is a subject of great interest, as also a cognate one, viz. the cause of the Vomiting of Pregnancy. In the present volume will be found essays on these subjects, and an accumulation of evidence in the shape of cases in proof of the truth of the doctrines I some years ago enunciated on this latter question.

A considerable number of new illustrations have been added to the new edition; and most of the new figures representing flexions and displacements of the uterus are drawn life-size, and the various mechanical appliances for their treatment are drawn the actual size of the instruments, with the view of rendering the descriptions and directions for treatment more explicit and less liable to misinterpretation.

The greater part of this new edition has been re-written.

G. H.



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## CHAPTER I.

### GENERAL CONSIDERATIONS RESPECTING THE DISEASES OF THE SEXUAL ORGANS IN WOMEN.

RELATIONS SUBSISTING BETWEEN GENERAL AND LOCAL DISEASES.—Importance of Maintenance of proper Nutritional Power as affecting the General Condition of the Patient—Nutritional Weakness of the Uterus a Cause of Softness of the Uterus, and an Important Factor in causing other Diseases of the Organ—Relative Importance of Affections of the Uterus and the Ovaries.

THE female sexual organs are a part only of the organism. The performance of the functions of various organs of the body in a normal manner implies a general condition of health of all the organs, and disorder of one of them has generally a disturbing effect upon others. Thus symptoms which at first sight appear to indicate local disease or disorder may, on more complete investigation, prove to be the manifestation of some more general disturbance. Hence, a sound view of a particular case must of necessity be a broad view: there is room for reproach to anything like an exclusive view. The exclusiveness may be on either side. There can be no question that it is as much a mistake to regard the 'local' as the 'general' element in the case exclusively; and while the importance of the 'local' element may have been sometimes over-estimated in the practice of gynæcologists, the fact remains that the 'general' has also very much too frequently usurped the proper place of the other in the practice of those who are not gynæcologists. The practitioner who refuses to look at the two sides dispassionately will possibly make great mistakes. He is certain at all events to lose many opportunities of doing good and relieving suffering.

In the study of the diseases of the female sexual organs we meet with many and complex problems, and much uncertainty and diversity of opinion still prevail in regard to the decision of many of these problems. It is quite evident that no decisive advance can be made in the settling of disputed points unless the primary

one of the connection between 'general' and 'local' disease be more satisfactorily determined. It may be confidently expected, unless I am very much mistaken, that some of the more important of the existing differences of opinion will be found explainable and reconcilable by full consideration of the facts adducible in reference to the manner in which 'general' disease is capable of influencing or predisposing to or actually producing 'local' diseases of the female sexual organs. It is the more likely that this satisfactory result will be attained, inasmuch as the explanations to be given involve concessions to both parties and give distinct credit to each of them. It may be said that it is no new thing to point out the importance of the 'general' element in dealing with gynæcological cases. Many previous writers have dealt with it, some prominently so. But there are various important considerations in connection with this subject which it is my object to develop more particularly in the following pages, and for which some degree of novelty may be claimed. I refer to the subject of a deficient and defective nutrition of the body generally and its effects on the sexual organs, more particularly the uterus, in predisposing to or in the production of actual disease. There appear to be good grounds for believing that, excluding accidents and injuries, the primary defect, the first step in the downward course, leading finally to established local disease, is a general weakening or impairment of the nutritional activity of the body generally. There is, first, a general weakness influencing more or less the whole of the organs of the body in an injurious sense: there is, in the second place, a particular and local weakness evidencing itself in the local disease and particular local symptoms. The clinical facts which are adducible in favour of this generalisation are before us, and its correctness may be attested without difficulty by simple observation of facts daily passing under our eyes.

It may be urged that the statement in the foregoing paragraph is a truism. It is so; in fact it is nothing more than the representation of a physiological truth. But it is nevertheless a truth which has yet to be applied to the explanations of various difficulties encountered by gynæcological pathologists.

In the year 1867 I adopted as the subject for an inaugural address at University College, 'Nutrition the Basis of the Treatment of Disease.'<sup>1</sup> I mention this as showing that my attention had been some time ago attracted to the importance of 'general' views.

<sup>1</sup> In 1879 I delivered an address to the Harveian Society on 'Chronic Starvation' (see *Lancet*, Jan. 1879), in which the same subject was further developed.



But it was not until the last five or six years that the more advanced and complete generalisation as to the influence of general imperfect nutrition in producing disease of the female sexual organs forced itself on my notice. I had been for a long time unable to account satisfactorily for the fact that in cases coming under my notice the uterus was so often found in a soft, flaccid state. Observation of very numerous cases and careful inquiry into the antecedents of these cases gave so uniform a history of long-standing mal-nutrition—a general kind of semi-starvation, in fact—that I gradually acquired the conviction that there was a real connection between them, and that the relation subsisting between them was actually one of cause and effect.

In the last (third) edition of this work the very great frequency with which patients suffering from uterine symptoms were found to present various forms and degrees of flexion of the uterus, was pointed out, and the opinion expressed that these sufferings are traceable to the altered shape and position of the uterus. But it was also insisted upon that ‘the change in the form and shape of the uterus is frequently brought about in consequence of the tissues of the uterus being previously in a state of unusual softness.’<sup>1</sup>

The nature and cause of this unusual softness of the uterus have, since the publication of the last edition of this work, much occupied my attention. This unusual softness, which had formerly much puzzled me to account for, I have since seen reason to trace to a previous general weakness and want of nutrition of the uterus. It is met with in those individuals, for the most part, who have been imperfectly and inadequately nourished for some time previously. Instead, therefore, of attributing this unusual softness to chronic inflammation, which was the best explanation of the matter I could offer in the year 1872, I now wish to substitute for it the explanation just given.

The foregoing remarks are anticipatory in a sense. And they apply for the most part to the uterus, which is only one of the female sexual organs; but they will indicate the view entertained by the writer as to the importance of the ‘general’ and its relations to the ‘local’ element in discussing the subject of diseases of the female sexual organs.

A further question is to be considered. The female sexual organs consist principally of two organs—the uterus and the ovaries. What is the comparative preponderance of these organs

<sup>1</sup> 3rd ed. 1872, p. 2.

in the origination of disease, and what is the comparative importance of diseases of the one or other of them?

Among gynæcologists the majority attribute the greater degree of importance to the uterus, but some consider that the diseases of the ovary are the more important. The difference of opinion is attributable, for the most part, to the different interpretation of symptoms by advocates of opposing views. Thus pains located laterally in the pelvis are considered to indicate ovarian irritations or inflammations by some authorities, whereas a different explanation would be given of them by the opposing pathologists.

It is necessary to weigh well the clinical and other facts adducible in favour of the uterine or ovarian origin of observed symptoms. The ovaries are undoubtedly most important organs in the female economy, and have indeed a great influence, in an indirect manner, on diseases of the uterus. In one sense of the word, the ovaries may be said indeed to be more important than the uterus. Yet the majority of clinical observers are of opinion that uterine disorders numerically preponderate over the disorders of the ovaries. The ovaries are liable to one form of disease—cystic degeneration—which is a malady of very great importance; but it is one comparatively rarely met with, while the uterus is liable to alterations and disorders, many of which involve continuous suffering and give rise to severe or troublesome symptoms. On the whole it appears that symptoms are far more frequently traceable to the uterus than to the ovary as the offending organ. The inflammatory conditions of the peritoneum covering the ovaries or parts immediately adjacent are considered by some pathologists as having special importance, ‘pelvic peritonitis’ being supposed to be a condition frequently present, and capable of giving rise to many of the symptoms which are more ordinarily set down to the uterus. These do not, however, appear to be good grounds for regarding this condition as a common one. Of late years, the introduction of Battey’s operation has been the means of acquainting us with the fact that the ovaries are, at all events occasionally, affected with contractions, degeneration of tissue, and other important changes. It seems certain that the list of ovarian diseases is undergoing an increase.

## CHAPTER II.

### NATURAL HISTORY OF THE UTERUS AND OVARIES.

NATURAL HISTORY OF THE UTERUS.—Effects of Menstruation—Pregnancy—Sexual Intercourse.

OVARIES; PHENOMENA OF MENSTRUATION AND OVULATION.—Vascular and Erectile Apparatus of Female Sexual Organs: Bulb of the Vagina: Bulb of the Ovary—Mechanism of Ovulation—Rouget's Researches—Menstruation—Recent Researches by Kundrat, Engelmann, Williams, and Leopold as to the Nature of Menstruation—Source of the Blood—Phenomena observed—Age, Periodicity, Duration, Quantity, and Quality of the Discharge.

### NATURAL HISTORY OF THE UTERUS.

THE uterus is an organ which has an extremely important position in the female economy, and the changes and modifications witnessed in its shape, size, and texture, in its vascular condition, and in its relations to the nervous centres, exercise a profound influence on the individual who is the subject of them. They produce discomfort of various kinds, they interfere with the natural performance of important functions, prevent the procreation of children, and involve many other minor inconveniences; not infrequently they predispose to the occurrence of other disorders capable of shortening life or bringing it to a sudden and abrupt conclusion.

Life in the woman is made up of three periods: 1. The period preceding that of sexual activity; 2. The period of sexual activity; 3. The period following the cessation of sexual activity. The peculiarities appertaining to these three several periods appear to be almost wholly dependent on, and subordinate to, the condition of the sexual organs at the several periods in question. The sexual organs consist essentially of the uterus and the ovaries, the due exercise of the sexual functions being dependent on the presence of these two organs in their integrity. In the exercise of the sexual functions the ovary is the more essential organ of the two: physiological reasoning conclusively indicates this. It may be that alterations in the ovaries, imperceptible perhaps to us as observers, influence the economy at large in a



profound manner ; but what we know at present rather justifies the belief that, in cases where the disorder is dependent on the sexual organs, the uterus is the particular organ most frequently at fault.

Before puberty has arrived, the uterus is small and undeveloped, and has, functionally, no existence. And it is remarkable that, during this period, and whilst it remains in its dormant condition, it is not liable to disease. Disease of the organ only begins to show itself when it begins functionally to live. After the climacteric age has been passed, and uterine life has ceased, we find that the condition of the uterus is one very closely analogous with that which subsists before the arrival of puberty. The uterus becomes atrophied—physiologically dead—and the liability to disease for the most part ceases. Thus, during the first and the third stages of the woman's life, equally, the uterus is an organ lying inactive and almost powerless in the economy. But this is not all. The uterus not only enjoys a life of its own, so to speak, but it has a life or a succession of lives within this. If the woman becomes impregnated, the uterus, previously developed and matured, forthwith starts on a new road of development, becomes remarkably altered and changed, and after the term of gestation has been completed, relapses into its previous condition ; the uterus becomes disintegrated, and its substance almost completely removed. The building up of the gravid uterus is not more wonderful than its subsequent destruction. Successive pregnancies involve each the formation and destruction of the organ ; for each pregnancy there is the life and death of an entire uterus.

The uterus has thus a life of its own, distinct from, and in a certain degree disconnected with, that of other organs of the body. And from all these considerations it results that the diseases of the uterus have also peculiarities separating them from diseases of other organs.

In diseases of all organs of the body, wherever situate, we witness for the most part only alterations of natural processes ; and the diseases observed in the uterus, in like manner, bear upon them the impress of their locality. It is not intended to imply that pathological processes and conditions, such as are met with in other organs of the body, may not be met with in the uterus. Such may unquestionably be the case : cancer, for instance, attacks the pylorus and the uterus, and the disease is in both positions integrally the same, although the tissues among which



it makes its inroads are not of the same kind in the two cases. But it will be conceded, after a very slight amount of consideration of the subject, that the interpretation of the pathological and other changes in the uterus would be difficult by one unacquainted—if we could imagine such a thing possible—with the peculiarities of the structure of the uterus and with the nature of the functions which the uterus is called upon to perform in the economy. And it results from what has been now said that the peculiar structure, the peculiar physiological functions of the uterus, impress upon it pathological conditions, phases, and characteristics, with which we have nothing thoroughly identical, and sometimes not even analogous, in the pathological conditions of the other organs of the body.

There are two great functions in which the uterus is prominently concerned, and which are most powerful disturbing influences in regard to its textural condition; these are, menstruation and gestation. There is a third in which it is also concerned, viz. the sexual congress, which is also capable, though probably in a less degree, of affecting its textural condition. How, and why, the exercise of these functions respectively affects the physical condition of the organ, and leads to disease, must now be pointed out.

**MENSTRUATION.**—During the whole of sexual life, the uterus is each month the seat of an unusual congestion of all its blood-vessels. Its circulation is more active, it enlarges, the sinuses—which are to be seen on making a section of the uterine walls as cavities of considerable size—become filled with blood, and its tissues engorged and expanded. It will be presently shown (see ‘Phenomena of Menstruation’) how profusely the organ is supplied with blood-vessels; it is further to be remarked that the veins are unprovided with valves, the result of which is that congestion of the uterine plexuses readily occurs. The menstrual congestion of the uterus lasts for some days even in health, the duration being probably from first to last not less than a week, and where the period is prolonged it may be considerably over a week. Scanzoni estimates the ordinary duration of menstrual congestion indeed as nearly half of the whole four weeks which usually constitute the ‘period.’ Prolongation of the menstrual period, or unusual intensity of the congestion for a shorter time, will thus lead in the end to a chronic condition of engorgement; for if the heart be weak, or if other circumstances interfere with the quick removal of the excessive quantity of blood from the

organ, the vessels do not recover their proper size, they remain permanently larger than they should be, and as a consequence the uterus itself acquires a size which is excessive and unnatural.

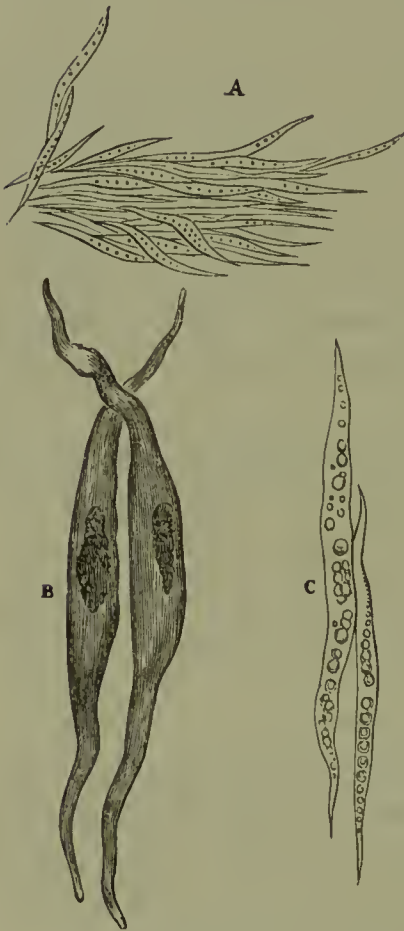
Thus, under ordinary circumstances the menstrual process tends to produce uterine congestion and enlargement, but when menstruation is disturbed, this congestion is intensified and perpetuated. Scanzoni—whose classical treatise on chronic metritis<sup>1</sup> appeared almost simultaneously with the first edition of this work—considers sudden suppression of menstruation as one of the most

important causes of chronic inflammation of the uterus; for the engorgement of the uterus natural to menstruation becomes, when unrelieved, a true congestion, the blood stagnating in the widely open vessels, and thus leading to other important textural changes. The severe and troublesome headache not uncommonly observed at the outset of the menstrual period, where there is a temporary obstruction to the escape of the blood from the uterus, indicates probably the transference of this congestion from the uterus to the head.

PREGNANCY.—The changes in the uterus which are the result of gestation are of a very important character.

The most remarkable change is the increase of the *size* of the organ which is observed under the circumstances; for after the foetus has been expelled and the uterus has been thoroughly emptied of its contents, its bulk many times exceeds that of the unimpregnated uterus. Under favourable circumstances, as is well known, the size of the uterus rapidly diminishes during the few weeks following parturition, until it finally becomes nearly, but not quite, as small as before the process of gestation commenced.

Fig. 1.<sup>2</sup>



<sup>1</sup> *Die chronische Metritis*, 4to. Berlin, 1863.

<sup>2</sup> Fig. 1 represents three conditions of the uterine muscular fibres: A. Fibres from the uterus in the non-gravid state; B. Fibres from the fully developed gravid uterus; and C. Fibres undergoing fatty degeneration after parturition.

This diminution in the size of the uterus is the result of a peculiar process, by which the very large muscular fibres, whose contractile power has been exercised in expelling the uterine contents, become first affected with fatty degeneration, and then undergo absorption and completely disappear. The vessels of the uterus also become at the same time much reduced in size. The process by virtue of which the uterus returns to its normal condition is now known as the *process of involution*. The time occupied in involution is probably about two months, the greatest diminution in size occurring during the second week, after which time under ordinary circumstances the enormous muscular fibres characteristic of the pregnant uterus have become disintegrated. Immediately after delivery the uterus has a thickness of one inch and a length of about eight inches; but by the end of the first month the reduction in size is nearly completely accomplished. The muscular fibres begin to undergo transformation into fatty molecules about four days after labour, and while the metamorphosis is proceeding the uterus is friable and soft. The new tissue of the uterus, which is to replace those which have been absorbed, begins to be evident at the end of four weeks after parturition, and shortly after this we may conclude that the uterus ought to be reconstructed.<sup>1</sup> During a month and upwards after parturition, the uterus is consequently unduly large and vascular, and it very frequently happens that circumstances interfere with the efficient and timely completion of its involution. If the placenta be not expelled rapidly, and the uterus remains unduly enlarged for a time, this circumstance gives rise to subsequent difficulties, for coagula form in the sinuses of the uterus, and even after expulsion of the placenta these coagula by their bulk interfere with the due contraction of the uterus. Again, if the expulsion of these coagula be deferred, as is not very uncommon, the return of the uterus to its normal size is proportionately interfered with.

Again, when the nutritive changes of the body generally are in a low state, and when the individual is debilitated from any cause, the normal metamorphosis of the uterine tissue is disturbed, the blood circulates less rapidly, the effete material of the uterus is not removed, and the organ continues large, unwieldy, and congested. Defective involution of the uterus may thus be a consequence of various disturbing causes in operation after child-

<sup>1</sup> See Heschl's valuable researches on this subject, *Zeits. der Gesells. der Aerzte*: Wien, 1852. Also Dr. Farre, *Cycl. An. and Phys.*, and Dr. Priestley *On the Development of the Gravid Uterus*: Lond. 1860.



birth, all of which tend to leave the uterus larger than it should be; the new uterus, constructed by growth of new material, and built up in the existing large framework, is also too large and its blood-vessels too full, and this creates a very strong predisposition to the perpetuation of an abnormal nutrition-process in the uterus. As will be shown presently, this increased size of the uterus leads to mechanical changes in its position and shape. It is almost unnecessary to mention how very important, in postponing the normal involution process, must be the occurrence of puerperal fever, uterine phlebitis, &c. Abortions are both an effect and a cause of defective involution of the uterus; but quickly repeated pregnancy undoubtedly tends to produce it, and thus to predispose to chronic inflammation; the reason being that before the uterus is thoroughly renovated, it is called upon again to undergo the gestation process. Quickly following pregnancies, especially when they occasionally result in abortions, both cause and are caused by a defective involution process.

SEXUAL INTERCOURSE.—The erection of the uterus described by Rouget and others as occurring during ovulation (see ‘Phenomena of Menstruation’) occurs also during the act of intercourse. At least this is highly probable. Sexual excesses predispose to chronic congestion of the uterus, inasmuch as they involve too frequently repeated, or too long continued, engorgement of the uterus and other generative organs. In young women recently married it is by no means uncommon to meet with a condition plainly brought about by excess of the kind here alluded to, and but little is required under such circumstances to produce a chronic engorgement of the organ, and the further train of evils usually following in its wake. It appears to be quite certain, also, that unnatural excitation of the generative organs in women leads to uterine mischief of various kinds, and promotes and maintains a chronic congestion of the organ and of its vessels, tending to give rise to various secondary disorders.

This brief retrospect of the mechanical results of the performance of the natural functions of the uterus will suffice to show the direction in which we are to look for the explanation of its various morbid conditions. The nutrition-process in the uterus is, as a consequence, very liable to derangement, this derangement resulting in the production of important alterations in the size, consistence, and structural condition of the organ.



## OVARIES : NATURAL HISTORY.—PHENOMENA OF MENSTRUATION AND OVULATION.

The importance of the physiology of menstruation and ovulation in the study of the morbid processes witnessed in the female generative organs is obvious.

All the generative organs are well supplied with blood. When in a state of rest the generative organs contain but a moderate supply of blood, but under excitement the vascular supply is very largely increased. This increase is effected by the distension of certain structures—erectile organs—which are at other times comparatively empty.

The orifice of the vagina has on each side of it an elongated leech-shaped body, the *bulb* of the *vagina*, composed of a large number of tortuous veins, closely packed together in a fibrous investment, prolonged upwards in the middle line to the glans clitoridis. This is a provision for erection, the blood being detained in the veins by the action of suitable muscles. Further, the vaginal canal is surrounded with a belt of blood-vessels, forming a large plexus of veins. The arrangement of the vessels supplying the uterus is of considerable importance, and Rouget<sup>1</sup> has particularly investigated this subject in a memoir of great value. The utero-ovarian artery, which supplies the uterus with blood, passes upwards. Its first branches, to the cervix, are small; but opposite the body of the uterus, it gives off suddenly twelve to eighteen short trunks, which pursue at once a spiral direction and divide into a large number of smaller branches. When injected, these vessels are seen to lie so close as to quite cover the sides of the uterus. The body of the uterus thus receives a very profuse arterial supply, and the spiral convolutions of the branches may be seen projecting into the sinuses of the uterine structure. The veins in which these arteries terminate are still more numerous and capacious, and they form a plexus covering the sides of the body of the uterus. Below, these veins end in the pudendal veins, in the middle they end in the uterine veins, and above in the spermatic veins. It results that the sides of the uterus are covered with a layer of considerable thickness, composed of blood-vessels having great capacity, and it is further to be recollected that the tissue of the uterus itself contains large sinuses—receptacles for venous blood.

<sup>1</sup> *Recherches sur les Organes érectiles de la Femme.* Brown-Séquard's *Journ. de Physiol.* tom. i.

The ovaries are supplied with blood from the utero-ovarian artery and from the spermatic. The arterial trunk passes along near the base of the ovary, and in its passage gives off a series of ten or twelve branches; these branches divide at once, assume a convoluted arrangement, and finally enter the ovary. The veins

Fig. 2.



coming from the ovary form a special bulb, *the bulb of the ovary*, composed like the vaginal bulb of a series of tortuous veins, susceptible of considerable distension. The bulb of the ovary has an elongated form, its length a little exceeding that of the ovary, it is a little flattened, not quite half an inch thick, and a little

deeper than this; altogether its size is not much inferior to that of the vaginal bulb. The pampiniform plexus of veins, a further portion of the vascular apparatus here met with, lies below the ovarian bulb in the folds of the broad ligament. The bulb of the ovary is a structure only recently known. The first allusion to it seems to be in a paper communicated by Mr. Traer to the Anatomical Society of Paris. It is well depicted in Dr. Savage's beautifully illustrated work,<sup>1</sup> and in Rouget's memoir (*loc. cit.*) it is made the subject of an elaborate investigation conjointly with those of the other erectile structures of the female generative organs (see fig. 2).

Certain muscular structures connected with the generative organs must next be considered. In the memoir of Rouget it is shown that the function of ovulation is probably greatly dependent for its efficient performance on the presence of muscular structures not before described in the human subject. Erectility is dependent, as Rouget remarks, on association of structures for reception of a large quantity of blood, and for detention of that blood. The bulb of the vagina is an erectile structure: the muscular apparatus connected with this is well known. And with reference to the bulb of the ovary Rouget endeavours to show that there is a muscular apparatus for the control of its vascular supply, and for constituting it in fact as an erectile organ. In lower animals the ovary is brought into coaptation with the ovi-

<sup>1</sup> *Illustrations of the Surgery of the Female Generative Organs.* London, Churchill, 1863.

duct by a mechanism which is not quite the same, though on the same general plan, in different cases. Thus in birds, where we find the muscular apparatus connected with the ovaries very well marked, the oviduct is surrounded by a muscular structure or envelope within which the coils of the oviduct lie. The contractile fibres are so placed that a two-fold effect follows from their contraction, viz. the infundibulum is opened out, and at the same time approximated to the ovary in order to receive the ova. The muscles producing this effect are of the involuntary kind, and radiate after the manner of a fan in the folds of the membrane enclosing the oviduct.

Rouget, after introducing other anatomical facts in reference to the comparative anatomy of the subject, goes on to state that in the human female there are to be found muscular fibres arranged on an analogous plan; that they form a system covering the uterus, ovaries, and appendages; and that the muscular fibres belonging to this system pass from the lumbar region to the ovary and to the fimbriæ near it, while others pass from the uterus over the ovary, and onwards to the fimbriæ of the Fallopian tube also, and that the simultaneous contraction of these two sets of fibres has necessarily the effect of bringing the fimbriæ near the ovary. The mechanism of the process is, he contends, identical in the case of the human subject and in animals lower in the scale.

Thus, then, the muscular fibres described, together with the vascular apparatus of the uterus and ovary, constitute together, if we follow Rouget, the erectile structure of the internal generative organs. Ovulation is accompanied by the following phenomena: the Graafian follicles being mature, or nearly so, the muscular fibres above described are set in action and the fimbriæ of the tube are thus made to grasp the ovary, at the same time that they induce and maintain a condition of erection of the ovarian bulb. This spasmodic erection is present so long as the ovary and the Fallopian tube remain in contact, and when the rupture of the Graafian follicle happens, the ovum passes into the proper channel. Ordinarily the ovipont occurs, because of the presence of ripe ova in the ovary; and with this process it has been almost generally admitted the phenomena of *menstruation* are associated, although of late years this view of the matter has been strongly opposed. It is probable that the act of congress often determines an ovipont, which without it would be postponed for a time. Here the act of intercourse induces erection of the external generative



organs, and doubtless also that erection of the internal organs above alluded to, the result being escape of an ovule. Rouget contended that the uterus is equally with the ovary an erectile organ, that its erection occurs simultaneously with that of the ovary, and that the final result of this erection, during which the uterus is kept gorged with blood, is exudation of that sanguineous fluid from the surface of its lining membrane, forming the menstrual discharge. As will be presently explained, this view of the cause of the hæmorrhage has been of late seriously impugned.

The action of the muscular apparatus in bringing the ovary to the open end of the Fallopian tube is probably greatly assisted by the engorgement of the ovary and of its bulb, for when the pelvic vessels are injected artificially after death, the effect is to bring the ovary close to the open mouth of the Fallopian tube; and it has indeed been assumed by some that the injection of the ovarian bulb is a principal agent in effecting the adjustment necessary for the ovipont.

We thus see, in the vascular and muscular structures of the internal generative organs, provision made for the supply of vast quantities of blood to these organs. In the human female the engorgement and full distension of the vessels occur periodically, the period of engorgement being that of menstruation; while it would appear that it is liable—during the sexual life at least—to occur also during intercourse. We may in the next place consider briefly certain of the other phenomena of menstruation.

The process known under the names ‘menstruation,’ the ‘catamenial discharge,’ &c., is one in the production of which two organs are concerned—the uterus and the ovary. Menstruation is usually an indication of the fact that the ovaries are in activity—in other words, that ova are being formed, developed, and matured in the ovaries. That menstruation may occur in cases where the ovaries have been removed, appears possible from certain observations made in the last few years. By ‘menstruation’ is meant a periodical discharge of a sanguineous fluid from the uterus, this discharge being attended, as already remarked, with an engorged or congested state of the uterus, ovaries, and adjacent organs, in most cases by hyperæsthesia of the parts in question, and by disturbances, of various kinds and degrees, of other functions of the body. It is, in a certain sense, analogous to the *œstrus* in the lower animals, the presence of menstruation being an indication that the woman is capable of being impregnated; but the woman differs from these animals in this respect, that she



is capable of being impregnated, not at the time during which the discharge itself occurs only, but also during the intervals between the periodic discharges. Very important additions have been made to our knowledge of the physiology of menstruation during the last ten years. The minute anatomy of the lining of the uterus at different periods had been studied carefully by Kundrat and Engelmann, by John Williams, Leopold, and others, and various important facts have come to light.

An essential element in the question of the changes occurring in the uterine mucous membrane during menstruation is the nature of the membrane itself, and its relation to the uterine wall. Dr. John Williams<sup>1</sup> points out that the uterus should be regarded as a mucous membrane, whose fibre-cells have undergone great development. He considers that three-fourths of the thickness of the walls of the uterus is really 'mucosa,' the tubules of this mucosa extending more deeply into the wall than is generally supposed. He considers, therefore, that the terms muscular wall and mucous membrane as generally applied are misnomers. This view of the matter, supported by arguments derived from the analogy of the structure of the stomach, and of uteri of other animals, is original, and has important bearings on the vexed question as to the changes in the uterine mucous lining during menstruation. Kundrat and Engelmann in 1873 published their researches on the changes in the uterus during the catamenia. They considered that the uterus is active not only during the menstrual flow, but both before and after, and that the menstrual activity is, in other words, spread over a much longer time than that represented by the actual menstrual flow. They were of opinion that the hæmorrhage of menstruation is due to fatty degeneration of the mucous membrane, the occurrence of which degenerative change they substantiated by their observations.

Dr. John Williams in 1874<sup>2</sup> brought before the Royal Society of London the results of observation of the uteri of nine women who had died in different stages of the menstrual period—his conclusions being that menstruation consists in rapid growth and decay of the mucous membrane; the discharge consists of the débris of the mucous membrane; the bleeding is from the vessels of the body of the uterus; that, the mucous membrane having undergone fatty degeneration, blood becomes extravasated into its

<sup>1</sup> *Obstet. Trans.*, vol. xvi. p. 206.

<sup>2</sup> The structure of the mucous membrane of the uterus and its periodical changes.—*Proc. of Royal Soc.* 1874.

substance ; the membrane then undergoes rapid disintegration and is entirely carried away with the menstrual discharge. In a later essay <sup>1</sup> Dr. Williams has published results of further investigations with observations of other cases, and in a third paper still further cases, <sup>2</sup> making nineteen observations altogether.

Barnsfather, in 1875, <sup>3</sup> records his clinical experience, extending over some time, with frequent microscopic examinations of menstrual secretions, and he finds exfoliations present in all cases, the exfoliations being thicker in cases of menstrual difficulty.

Leopold <sup>4</sup> has given the results of his observations in several cases, which are to the effect that the disintegration of the mucous membrane is, when it occurs, very slight, and affects only the great superficial layer of the mucous membrane ; while in some cases, where death occurred a few days after the period, the mucous membrane was still of considerable thickness. Leopold did not find evidence of fatty degeneration in his cases.

The evidence which is to be gathered on the subject, although by no means uniformly pointing to the disintegration and separation of a considerable thickness of the mucous membrane in normal menstruation, shows the extreme probability of a destruction and removal of the superficial layer in all cases. It is perfectly certain that the mucous membrane, at or about the menstrual period, is a pulpy, thick, exceedingly vascular substance. The hæmorrhage occurs either from the open mouths of the tubules, either with accompanying disintegration of the superficial layer, or without it. That fatty degeneration does occur is undoubted, though it seems open to question if this is universally the case. It does not appear that the whole thickness of the mucous membrane is ever removed ; and, indeed, this is hardly possible if we accept Dr. Williams's view that the mucosa, in a physiological sense, includes much of the muscular wall of the uterus. It is probable that further inquiries will reconcile the present apparent discrepancies between the results of late observers ; some of them are, indeed, explainable by want of accurate information as to the precise date of the last menstruation.

Some years ago I had opportunities on four or five occasions of examining the uterus during menstruation. In the case of a woman who died while menstruating, after an operation for hernia,

<sup>1</sup> *Obst. Trans.*, vol. xvi. p. 206.

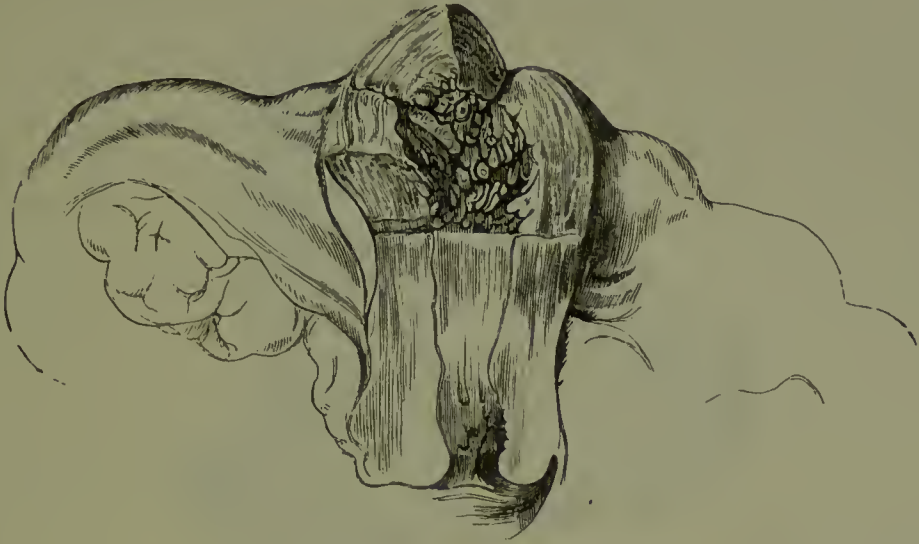
<sup>2</sup> *Obstet. Jour.*, Dec. 1877.

<sup>3</sup> *Cincinnati Med. News*.

<sup>4</sup> *Die Uterusschleimhaut und die Menstruation*, Leipzig, 1877.

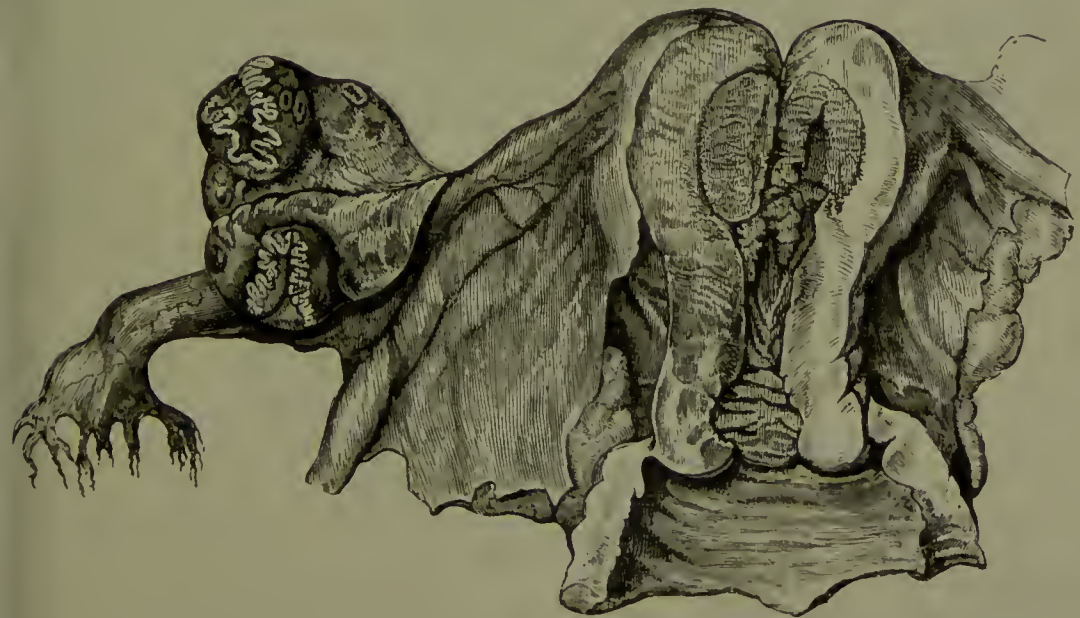
I saw the uterus lined by a deeply red, velvety soft structure, on the free surface of which were to be seen the open mouths of the uterine glands (see fig. 3). Fig. 4 represents the condition observed in a young woman who died, while menstruating, from

FIG. 3.



the effects of a burn, in University College Hospital. In other cases I have found the mucous membrane in actual process of disintegration.

FIG. 4.



The changes in the ovary coincident with menstruation may next be alluded to. Supposing matters take their ordinary course, the ovary produces on its surface, and periodically, matured Graafian follicles, one or more at a time, causing the ovary to



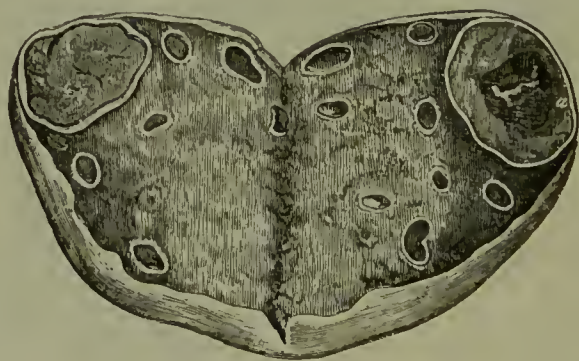
present an elevation the size of a nut-kernel, and constituted by the follicle distended with blood and containing the ovule. This condition of the follicle is certainly frequently present at the time menstruation occurs, but it is probable that such a matured condition may be present at other times also. The next event is the

FIG. 5.



rupture of this follicle and passage of its contents into the Fallopian tube—the ovipont—provided for in the manner already described. Fig. 5 (from Dr. Farre) shows a Graafian follicle preparing for rupture; fig. 6 a section of the same follicle, exhibiting its cavity and a blood clot within. Rupture of one or more follicles probably occurs at, or before, or shortly after, each

FIG. 6.



menstruation, though not limited absolutely to that period. After the follicles have discharged their contents, the cavity of the follicle and the interior of the Fallopian tube may or may not remain in connection with each other: if further bleeding from the interior of the follicle occurs, the blood will or will not find its



way into the uterus, according to circumstances. It is obvious that the continuous application of the Fallopian tubes to the ovary is expedient during the whole time follicles are liable to become ruptured, or there might be escape of the follicular contents into the peritoneal cavity. Such escape and consequent failure of the ovipont is not very uncommon, leading to sterility, to extra-uterine fœtation, to effusion of blood into the peritoneal cavity, and other disorders. The Graafian follicle, having discharged its contents, the blood within it ordinarily coagulates, the cavity shrinks up, and by the successive growth of follicles lying deeper in the ovarian stroma, the used-up follicle sinks back towards the middle of the ovary, becomes smaller and smaller, and disappears at the end of three or four months. The retrogression of the follicle is marked also by changes of colour due chiefly to the transformation the blood-clot undergoes, and to the changes in the very vascular lining of the follicle. After bursting, the follicle is known as a *false corpus luteum*.

From observations made in several subjects Dr. John Williams believes that ova are usually discharged from the ovary before the appearance of the monthly flow with which it is connected.<sup>1</sup> In ten out of fourteen, rupture of a follicle or hæmorrhage into its cavity had occurred before the return of the catamenia; in one it was doubtful whether rupture of a follicle or the appearance of the discharge would have occurred first; in two a menstrual period had passed without maturation of a follicle, and in one a periodical discharge was imminent, though the ovaries contained no mature Graafian follicle.

Leopold's observations tend also to show that the Graafian follicle bursts before the menstrual period, rather than after it. On the other hand, observations are not wanting to show that the ovipont in some cases at all events occurs after the commencement of the menstrual flow. On the whole it seems probable that there is a variation in regard to the time of the ovipont, though it more often than not occurs near the menstrual period. It seems probable, from the observations of Coste, not less than from other considerations, that it is not uncommonly determined and brought about by sexual intercourse. The question of the ordinary time of the ovipont is interesting as bearing on that of the time of impregnation. The Hebrew custom is in favour of the view taken by Dr. Williams, but the known fact that the

<sup>1</sup> On the discharge of ova and its relation in point of time to Menstruation, *Proc. of Roy. Soc.* 1875.

spermatozoa may remain active for several days after intercourse has occurred vitiates conclusions drawn from actual experience as to the efficiency of single acts of intercourse at particular periods.

The commencement of the process of menstruation is usually preceded by certain changes in the outward conformation and appearance. The general signs of the arrival of puberty in the woman are thus eloquently enumerated by Brierre de Boismont: 'L'époque de la puberté est enfin arrivée. Une révolution immense s'opère dans l'organisation de la jeune fille. A ses formes grêles et allongées ont succédé des contours pleins et gracieux. Sa démarche, incertaine et languissante, devient ferme et animée. Le doux éclat de ses yeux révèle le feu dont elle est pénétrée. Des changements non moins remarquables ont lieu dans l'économie. . . . La poitrine, étroite et resserrée, s'agrandit et s'évase. Les poumons respirent plus à l'aise; le cœur, plus développé, lance avec force le sang dans les innombrables vaisseaux du système circulatoire. Le tissu cellulaire apparaît à son tour pour former des courbes admirables qui constituent la beauté de la femme. De tous les organes qui ressentent l'influence de la puberté, l'utérus et ses annexes sont ceux où elle est le plus prononcée. Réduits à un petit volume, la matrice, les ovaires, les trompes, et les seins prennent un accroissement considérable. Les os, les muscles participent à ce développement général. Le moral lui-même offre des différences non moins tranchées. La jeune fille, jusqu'alors véritablement enfant dans ses goûts, ses inclinations, ses penchants, éprouve une complète métamorphose; inquiète et rêveuse, elle ne sait à quoi attribuer les sentiments nouveaux qui l'agitent; tous les sens sont en éveil; une douce chaleur la pénètre; un prurit inaccoutumé se fixe aux organes de la génération; le plus important phénomène de la puberté, son complément indispensable, celui qui transforme la jeune fille en femme, la première éruption des règles, se manifeste.'<sup>1</sup>

There are also sometimes present in young women who are about to menstruate shortly certain sensations, more or less marked in different cases, and most intense in those cases where the appearance of the menstrual discharge is a little delayed. These symptoms are known by the term *molimina menstruationis*. The chief symptoms of the menstrual molimen—the attempt at menstruation, the evidence of ovarian activity—are as follows: A sensation of weight and fulness in the pelvis and its neighbourhood, together with a 'bearing down' or dragging

<sup>1</sup> *De la Menstruation dans ses rapports physiologiques et pathologiques*, Svo Paris, 1812, p. 1.

sensation; pains radiating from the loins downwards towards the perinæum, and occasionally extending down the thighs; tenderness over the hypogastric and inguinal regions; a feeling of heat in these regions so intense as to be described 'as burning' by some patients. Irritability of the bladder, frequency of micturition, and inability to evacuate the bladder, are more rarely observed. The digestive system sympathising, there are diarrhœa, or constipation, sickness, inappetency. Fretfulness, or change of temper and disposition, may also be noticed; in fact, many of those symptoms usually classed under the denomination 'hysterical' may be present. The local symptoms are the most constant. When symptoms of the above character are observed at intervals of three or four weeks, persisting in each periodic recurrence for two, three, or four days together, in a young woman who presents outward signs of having arrived at puberty, they are evidence of the existence of ovarian action, and constitute the menstrual molimen. The characteristic point about these symptoms is their periodicity.

In some cases where menstruation is absent there is witnessed a periodically occurring hæmorrhage or exudation of blood from some other mucous surface, as from the lungs, stomach, surface of an ulcer situated on some part of the cutaneous surface, from beneath the toe nails, from the conjunctiva, &c. In such cases there is said to be *vicarious menstruation*.

The age during which the catamenial discharge occurs is open to certain variations; but, as a rule, it begins during the ages of 14 and 16, and ceases between the ages of 40 and 50. For about thirty years of the woman's life this discharge is periodically observed. With reference to the age at which it commences, we have observations by Robertson,<sup>1</sup> Whitehead,<sup>2</sup> Brierre de Boismont,<sup>3</sup> and Szukits.<sup>4</sup> In 358 cases observed by myself, menstruation occurred for the first time

At the age of 10 in 3 cases

"	"	11	"	12	"
"	"	12	"	29	"
"	"	13	"	43	"
"	"	14	"	73	"
"	"	15	"	62	"
"	"	16	"	61	"
"	"	17	"	33	"

At the age of 18 in 23 cases

"	"	19	"	10	"
"	"	20	"	6	"
"	"	21	"	2	"
"	"	24	"	1	"

Total . . 358

<sup>1</sup> *Observations and Notes on the Physiology and Diseases of Women, and on Practical Midwifery*, 8vo. 1851.

<sup>2</sup> *On the Causes and Treatment of Abortion and Sterility*, 8vo. 1847.

<sup>3</sup> *Op. cit.*

<sup>4</sup> See an abstract of his observations in Schmidt's *Jahrb.* b.l. xevii. p. 331.



Statistics of 2,696 cases at University College Hospital obtained from women who applied at this hospital to be attended in their confinements, and collected for me by Mr. Walter Rigden, are as follows:—

Of the 2,696 cases, menstruation occurred for the first time

At the age of 9 in 3 cases				At the age of 18 in 150 cases			
"	"	10	14	"	"	19	76
"	"	11	60	"	"	20	29
"	"	12	170	"	"	21	7
"	"	13	353	"	"	22	3
"	"	14	560	"	"	23	2
"	"	15	540	"	"	24	0
"	"	16	455	"	"	25	0
"	"	17	272	"	"	26	2

The mean age is 14·96, about. The greater number of these cases were hospital out-patients.

The mean age in 4,000 cases referred to by Whitehead was 15 years  $6\frac{3}{4}$  months. In 2,169 cases collected by Robertson, Lee, and Murphy, the mean age was 14 years 11 months. Szukits found the mean age to be, in 665 women born in Vienna, 15 years  $8\frac{1}{2}$  months; and in 1,610 women born in the country, 16 years  $2\frac{1}{2}$  months, which result, as regards the influence of town life in hastening the first appearance of the catamenia, agrees with that arrived at by Brierre de Boismont in Paris. The latter observer states that, amongst women belonging to the upper classes of society, the average age of commencement was as early as 13 years 8 months. Although the age 14–16 is the most common, yet there are numerous exceptions to this rule. In Robertson's 450 cases, ten began to menstruate as early as 11 years old, and nineteen at 12. The youngest of Szukits' cases was, in the town class 11 years and in the country class 10 years old. In three out of 358 cases noted by myself, menstruation began at the age of 10 years, and although the largest number of my own cases—73 out of 358—menstruated first at the age of 14, a very considerable number menstruated first as late as the age of 18.

The mean age of the commencement of the catamenia appears to be about two years earlier in the warmer than in the more temperate climates. Thus in India the mean age in 597 cases collected by Robertson was 13 years. It was formerly supposed, on the assertions of Montesquieu and Haller, that Hindu women began to menstruate, as a rule, at 8, 9, and 10 years of age; but the facts collected by Robertson conclusively show the incorrectness of this opinion. It does appear, however, from Robertson's



tables, that 'the proportion of Hindus who arrive at puberty at the ages of 12, 13, and 14,' is far greater than is observed in the women living in our own temperate country. This early arrival of the catamenia is attributed by Robertson to the influence of race—to the circumstance that for many generations (upwards of three thousand years) it has been the custom of this people to give their daughters in marriage immediately on the arrival of puberty. This custom has, in Robertson's opinion, produced and perpetuated a kind of 'family peculiarity.' Montesquieu and Haller held that 'climate' is the determining cause of this difference. More recent statistics are in the same direction. Thus Vogt's researches show that in Norway the average first appearance is the age of 16.12. We may contrast this with the average at University College Hospital of 14.96. Toulmin and Lagneau have collected observations on cases in various latitudes presented to the International Medical Congress at Paris in 1867,<sup>1</sup> the general conclusions from which are in confirmation of the fact of the earlier appearance of menstruation in hot climates. And it would appear that climate is really the determining element in the difference observed, between extremely hot and extremely cold countries, a difference represented by from three to four years.

The *latest age* at which the catamenia may commence is open to great variations; but, as a rule, it is not postponed beyond the age of 18. Brierre de Boismont found that, out of 352 'femmes de la capitale,' twenty began to menstruate at 18 years, six at 19, five at 20, two at 21, four at 22, and two at the age of 23. The latest age given by Robertson is also 23. Szukits gives the age of 22 as the latest at which the first appearance occurred in the Vienna class; but of those from the country one woman began to menstruate as late as 25. The latest age in my own series was 24. In a case quoted by Meissner, the catamenia first appeared at the age of 42.<sup>2</sup>

The cessation of menstruation occurs in the majority of cases between the ages of 40 and 50. The number of cases in which the cessation takes place before 40 is greater than the number of those in which the final appearance of the catamenia occurs after the age of 50. (Brierre de Boismont.) There appears, however, to be a great diversity in the results obtained by various observers on this point. Thus, in the cases, 181 in number, of the author

<sup>1</sup> New Syd. Soc., *Bien. Retrospect.* for 1867-8, p. 377.

<sup>2</sup> Meissner, *Frauenzimmerkrankheiten*, ii. 741.

just quoted, the age at which the final cessation most frequently (18 out of 181) occurred, was 40; while in Robertson's cases it was most frequently observed (in 26 out of 77 cases) at the age of 50; in the majority of the cases observed by Szukits at 46–50. The earliest period at which the cessation may take place is shown by the following recorded facts: Of Brierre de Boismont's 181 cases, the cessation was noticed in seven before the age of 30, the earliest being at the age of 21. The earliest cessation in Robertson's 77 cases was at the age of 35. Szukits gives two cases at the age of 30.

The following table shows the results of my observations in 55 cases:—

Menstruation ceased at the age of 30 in 1 case					Menstruation ceased at the age of 46 in 2 cases				
„	„	33	„	1	„	„	47	„	4
„	„	34	„	2	„	„	48	„	5
„	„	35	„	1	„	„	49	„	4
„	„	37	„	1	and 1 still men- struating at that age				
„	„	38	„	3					
„	„	39	„	1	„	„	50	„	4
„	„	40	„	2	„	„	51	„	3
„	„	41	„	2	„	„	53	„	1
„	„	43	„	8	and 1 still men- struating at that age				
„	„	44	„	2					
„	„	45	„	6	Total . 55				

Perhaps the most interesting class of facts in connection with this subject has reference to the latest age at which menstruation may occur. There is very little doubt that some of the cases related as cases of late menstruation are not cases of menstruation proper at all; but it must be allowed that occasionally a discharge, sanguineous and periodic, may be present at a very late age. Gardien relates the case of a woman said to have been 'parfaitement réglée' at the age of 75. Up to the age of 55 there are a sufficiently large number of cases; but after that age true menstruation is exceedingly rare. Brierre de Boismont gives five after the age of 55, out of 181, one being as late as 60. Robertson (*op. cit.* p. 185) gives four out of 79, as occurring after 55, two of which were at the age of 60, and one as late as 70. Lastly, Szukits gives one case (his latest) at the age of 60.

Some, apparently well authenticated, cases of menstruation at very advanced ages, viz. at 91, 80, 87, 59, and 70 years of age, are related in the work of the late Dr. D. D. Davis.<sup>1</sup>

In reference to the foregoing statements, it is probable that

<sup>1</sup> *Principles and Practice of Obstetric Medicine*, vol. i. p. 239.

many of the apparent exceptions to general rules quoted were cases in which pathological elements were more or less intermixed.

Menstruation ceases earlier in India; but everywhere the duration in years is much the same. For about thirty years menstruation continues. Robertson is of opinion that early cessation is chiefly noticed in those cases in which the function has been established at an early period. In most of those cases, however, in which the function continues to be exercised up to the age of 53 or 54, the period of commencement has not been unusually late; in such cases, the menstrual life far exceeds the average of thirty years.

Dr. Beigel,<sup>1</sup> the able editor and translator of the two former German editions of this work, gave this observation on 500 cases: of 126 cases where menstruation had ceased, there were 9 cases of late menstruation.

Menstruation ceased at 51 in 1 case					Menstruation ceased at 65 in 1 case				
"	"	"	52	2	"	"	"	72	1
"	"	"	53	1	"	"	"	—	—
"	"	"	54	1	Total . . . 9				
"	"	"	55	2					

*Periodicity.*—The usually accepted statement is that the time included between the day of the appearance of the discharge and the corresponding subsequent day is twenty-eight days—a lunar month; but the difference presented by individual cases in this respect is so great as to show that any rule generally applicable must have rather a wide range. Many women menstruate regularly every three weeks; and a less number menstruate every calendar month, or a little over. In another class of women there is great irregularity, the period varying from time to time consistently with health. It is only, then, in the majority of instances that menstruation occurs every lunar month. There is often evidence that peculiarities in respect to the menstrual period are transmitted from one generation to another.

*Number of Days during which the Discharge continues.*—In 562 cases examined by Brierre de Boismont, the discharge continued 8 days in 172 individuals; the number of days next frequently observed was 3; the next 4. The conclusion arrived at by this author was that the menstrual flow continues longer in towns than in the country; and longer in small, nervous, delicate women, than in those who are tall, robust, and of a sanguine

<sup>1</sup> German edition of this work (Enke, Erlangen), p. 245.



temperament; longer also in those who lead a sedentary, easy, voluptuous life than in those who follow active occupations, whose diet is conducive to health, and whose manners are regular.<sup>1</sup> In women who are beginning to menstruate, the discharge lasts generally a short time for the first few months, its duration increasing subsequently. The time during which the discharge continues is, in general terms, three to seven or eight days; but the observer must be prepared to meet with great variations in this particular.

*Quantity.*—Late observers (Magendie excepted) consider the typical quantity of sanguineous fluid which is lost at each period to be three to four ounces, or even less than this.<sup>2</sup> The older estimates considerably exceed this in amount. The quantity appears to be greatest about the middle of the period in the majority of cases. Sudden cessation for some hours together, followed by copious discharges, whether accompanied by coagula or not, is abnormal; for when there is no impediment the flow continues persistently and uninterruptedly, though it may be more in quantity at one time of the day than another.

*Quality of the Fluid discharged.*—The researches of Dr. Whitehead, Donné, and others, have conclusively shown that the discharge observed is really composed of blood; and that when obtained immediately from the uterus, and before it has been subjected to the action of the acid mucus of the vagina, it is coagulable just as is ordinary blood. As an illustration of this fact we find that, when the menstrual flow is excessive, clots are not unfrequently discharged. Ordinarily, as it flows from the vulva, it has acquired an acid reaction, and is no longer coagulable. For the first few hours the discharge is paler, it then becomes of a deeper red, and again appears of a lighter colour as it is about to disappear. The odour of the menstrual secretion is peculiar; formerly extraordinary effects were attributed to it, which it is unnecessary to enumerate here. The varying qualities of the vaginal and cervical secretions have probably more influence in altering the qualities of the menstrual fluid than any varieties of the fluid itself as it exudes from the uterus.

<sup>1</sup> *Op. cit.* p. 142.

<sup>2</sup> Farre, *loc. cit.* p. 663.



## CHAPTER III.

### EXAMINATION OF THE UTERUS AND OVARIES.

DIGITAL EXAMINATION OF THE UTERUS FROM THE VAGINA.—Position of the Patient.

DOUBLE EXAMINATION OF THE UTERUS.

DIGITAL EXAMINATION OF THE OS UTERI AND OF THE VAGINAL PART OF THE CERVIX UTERI.—Normal Condition of the Os and Cervix—Method of Examination—Apparent absence of the Os Uteri; various causes—Unusual Softness of the Os Uteri from Pregnancy or other Causes—Unusual Hardness of the Lips of the Os Uteri; its Causes—Size of the Os Uteri—Variations in the Length of the Vaginal Portion of the Cervix Uteri; Relation of Pregnancy to this Condition.

EXAMINATION OF THE UTERUS BY MEANS OF THE SOUND.—The Instrument; Method of Introduction—Variations in the Length and Direction of the Uterine Canal detected by the Sound.

EXAMINATION OF THE OS UTERI BY MEANS OF THE SPECULUM.—General Rules—Method of Using the Instrument—Description of Various Instruments.

EXAMINATION OF THE OVARIES.

IN order to obtain precise information as to the physical condition of the uterus and ovaries, a physical examination is indispensable. The examination is made by means of the finger introduced into the vagina, sometimes also into the rectum, and further information may often be elicited by means of palpation over the hypogastric region of the abdomen.

#### DIGITAL EXAMINATION OF THE UTERUS FROM THE VAGINA.

To practise digital examination of the uterus from the vagina, the patient is usually placed on the side. The patient should be laid on the side close to the edge of the couch, and the trunk of the body placed somewhat across the couch. The knees should then be drawn upwards, so as to be quite at right angles to the body. This position enables the observer to reach with the finger much higher in the interior of the pelvis than is possible in any other way. It is sometimes necessary in cases of suspected pregnancy, e.g. to examine the patient in the standing position, in order to detect more readily increase in the size and weight of the

uterus, the presence of ballottement, &c. In the case of unmarried women, with an unruptured hymen, digital examination of the uterus should not be undertaken unless it is really necessary. Such an examination should not be carried out unless there is a reasonable probability of the existence of some decidedly abnormal condition of the uterus. On the other hand, false delicacy should not be allowed to operate so as to prevent the recognition of conditions whose removal are essential to health and comfort. In doubtful cases an examination by the rectum may be made first, and it can thus be determined whether further examination by the vagina is really required. Very valuable information as to the general shape and position of the uterus can be thus procured, the septum between the rectum and vagina being so thin that the practised touch readily defines the uterus in this manner. Thus the hymen may be entirely avoided. It is found that under anæsthetic influence the resistance offered by the hymen is less, and thus digital examination is facilitated by the use of ether or chloroform.

The finger should be cleansed and covered with oil or unguent before being introduced. The finger should be introduced slowly and carefully, and by its means the roof, the floor, and the upper part of the vagina can be successively touched. The cervix and os uteri are also subjected to touch, and information as to the size, consistence, shape, and position of the uterus are obtained. Deliberation and care are necessary to the proper conduct of the exploration.

Ordinarily the finger introduced into the vagina can be made to touch the os and the vaginal part of the cervix uteri, but the body of the uterus, and, indeed, the upper part of the cervix, are not in a state of health easily accessible by this means of examination alone. To reach the fundus anteriorly the roof of the vagina must be pushed very firmly upwards, and even then the effort may not be successful in the normal state of things. And it is quite impossible to reach the fundus posteriorly by this method of examination alone when the uterus is in its proper condition.

The digital examination of the uterus *per vaginam* is by far the most valuable and important means of acquiring information regarding its physical condition. Too much attention can hardly be bestowed in acquiring facility and dexterity in this method of examination, and it is certain that unless it be carefully practised there is no safeguard against the acquiring of erroneous and inadequate notions respecting the case before us. It is, taken alone,

far more valuable than any other method of exploration that can be mentioned, for although other methods of examination may be required, they are all subordinate to this—the digital examination.

By means of the digital examination of the vagina also the condition of the ovaries can frequently be determined. Ordinarily the ovaries are not easily felt by the finger introduced as above directed, but if the ovary on either side lies unusually low it can be readily felt through the vaginal wall.

The physical exploration thus conducted gives valuable information respecting the presence or absence of thickening, or hardness, or tumours situated in front of or behind the uterus, or laterally in respect to this organ; and abnormal conditions of the rectum—presence of accumulations of fæces, &c., are often thus recognised when they would have been undetected or overlooked had this digital examination of the vagina been omitted.

*Double Examination of the Uterus.*—There are several methods by which the uterus may be more completely and exactly explored.

1. The patient being placed on the back or laid on the side with the axis of the body across the couch or bed, the forefinger of one hand is inserted in the rectum, and the fingers of the other hand placed above the pubes. Thus the shape and size of the intervening structures can, under favourable circumstances, be recognised more precisely. This method is useful also in cases where a vaginal examination is objectionable.

2. Or the forefinger of one hand is inserted in the vagina, and the fingers of the other hand placed above the pubes.

3. Or a sound is inserted in the bladder, and the finger into the rectum. This method is very serviceable in cases of suspected absence of the uterus.

4. A method suggested and practised by Dr. Noeggerath, of New York, consists in dilating the urinary meatus, inserting the finger of one hand into the bladder and the forefinger of the other hand into the rectum. The shape and size of the uterus can be more perfectly and completely explored in this manner than in any other way. Dr. Noeggerath has examined as many as thirteen cases in this manner.<sup>1</sup>

The objection to this method is the necessity for forcible dilatation of the urethra. This forcible dilatation Dr. Noeggerath effects either rapidly at one sitting, using first a steel dilator and then metallic bougies until enough space is obtained to admit

<sup>1</sup> *American Journal of Obstetrics*, vol. viii. p. 123.



the finger, or more slowly by laminaria tents. He found the effects of the dilatations severe in six cases (in all of the six dilatations rapid, under chloroform), producing frequent micturition, burning, sensations of pain, and in one case perimetritis, but in no case was permanent bad result observed. The general conclusion to be drawn from Dr. Noeggerath's experience would seem to be that this method of exploration is valuable, but its employment will probably be always limited to very exceptional cases.

5. Another means of double examination consists in introducing one finger into the rectum and the uterine sound into the uterus itself. The sound can then be felt through the rectum. (See Examination by the Sound.)

#### DIGITAL EXAMINATION OF THE OS UTERI AND OF THE VAGINAL PART OF THE CERVIX UTERI.

The size of the orifice of the os uteri, its shape, the hardness or softness of the lips of the os and of the adjacent structures of the vaginal portion of the uterus, are all open to considerable variation, and upon these variations conclusions may be very safely based as to the nature of the pathological or physiological alterations present.

To appreciate the various changes which are liable to occur in the condition of the lower part of the uterus a knowledge of the normal condition and relations of the parts is essential. The finger must be educated and accustomed to associate a particular sensation with a corresponding condition: an observer with an educated finger will thus be enabled to draw conclusions wholly unattainable by an inexperienced person. In the words of Gooch, 'the finger soon gains the power of feeling when the mind has acquired the knowledge of what to feel for.'

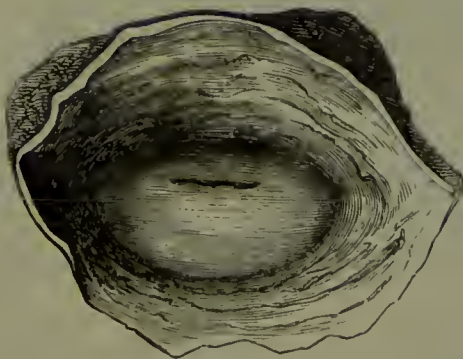
As preliminary to the discussion of this subject, some account of the normal condition of the os and cervix uteri is necessary.

'In the virgin and unimpregnated condition of the uterus,' says Dr. Montgomery, 'its mouth and the lower section of its neck, when examined by the finger introduced into the vagina, can be felt, as it were, projecting into that cavity from a quarter to half an inch. The part so projecting feels remarkably firm, is slightly tapering or conical in form, and about as large as the end of a man's thumb; having, at its termination in the vagina, a transverse opening whose lips or margins feel firm and well defined. This may be so far open as to allow the extremity of



the finger to be insinuated to the depth of an eighth or a quarter of an inch, sometimes a little more, sometimes not so much; or it may merely communicate a sensation of a slight depression almost without a cavity, such as is felt when the tip of the finger is pressed between the lateral cartilages, at the extremity of the nose. Sometimes the os uteri differs very considerably from this description, being almost imperceptible from its diminutive size, and perfectly circular, and it is not very rare [here I do not agree with Dr. Montgomery. Such a condition is very rare in the virgin] to find it opening at once from the upper extremity of the vagina without any projection of the cervix uteri into that canal, which to the finger seems to taper gradually to a point, and there terminate in the orifice of the womb, the margins of which are very indistinctly felt. . . . Once a woman has borne children, or sometimes even one child, the conditions of the uterus are liable to be altered in several appreciable circumstances. The whole organ is apt to remain permanently larger than it was originally, and the cervix partaking of this change, is found broader, less prominent, and less firm in texture, while its shape is sometimes the reverse of that noticed in the virgin or nullipare, being indeed somewhat conical, but having the base of the cone downward instead of above; under the same circumstances the os is found of greater dimensions, and its opening much more distinctly transverse, admitting more readily the introduction of the end of the finger, and not unfrequently having its circumference or margins uneven, perhaps fissured, and giving the sensation of being a little lobulated.’<sup>1</sup>

FIG. 7.



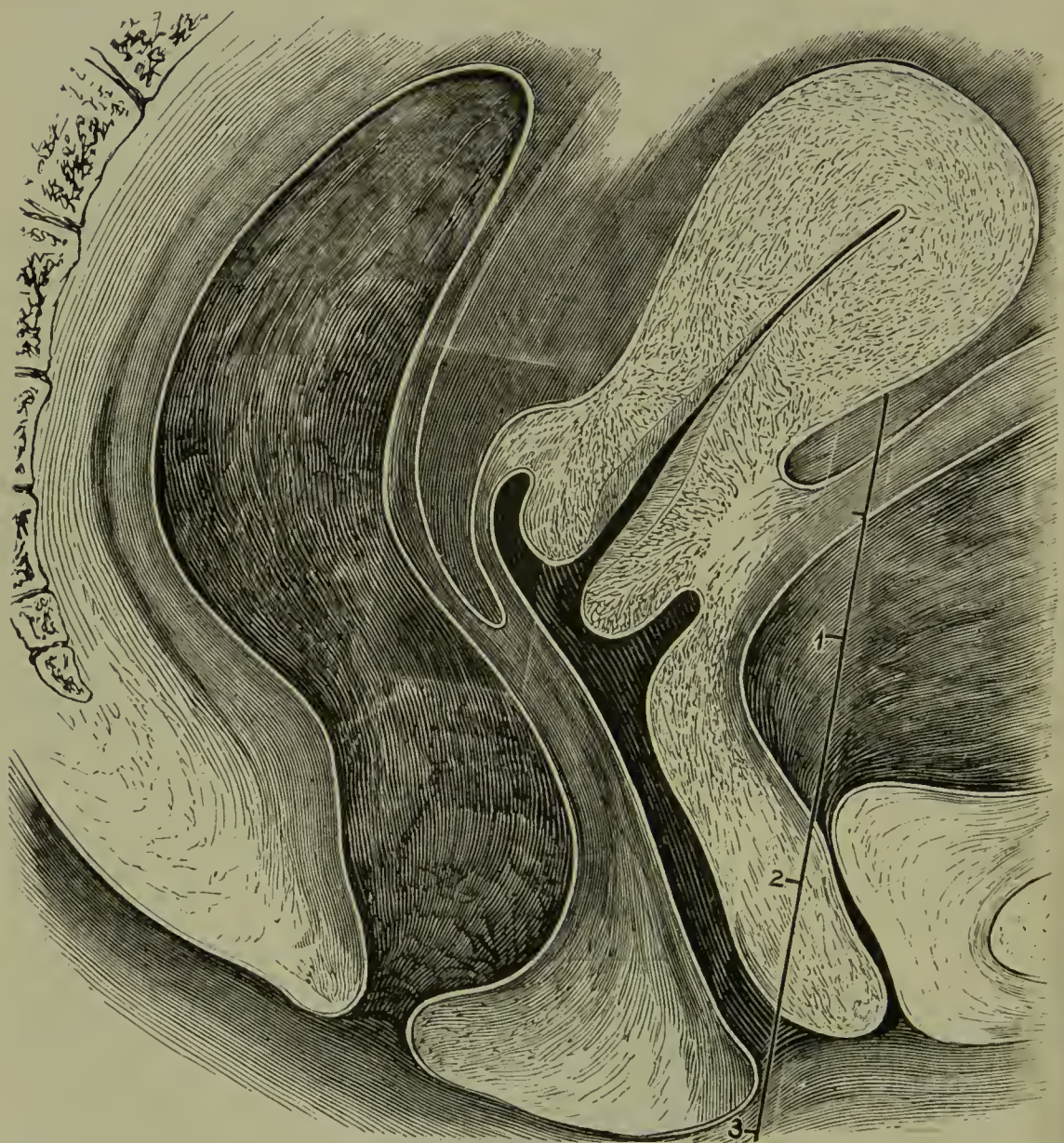
The annexed drawing, copied from one by Dr. Farre (see fig. 7), represents the orifice as having a transverse shape. The transverse length of the orifice as here shown is, I believe,

<sup>1</sup> *Op. cit.* p. 170.

greater than it is found to be in the virgin os in the majority of cases.

The patient being placed on the side as before directed, the finger is then introduced into the vagina, the guide to the orifice being the great trochanter ; for it will be found that in the foregoing position the left hand being laid on the great trochanter the orifice

FIG. 8.



of the vagina is immediately beneath it. A knowledge of this fact will be found useful in facilitating the necessary examination.

It will be borne in mind that under *ordinary* circumstances the finger passes about the distance of an inch before reaching the position of the hymen, where the true vaginal canal really begins, and the whole of the forefinger must be introduced before the os



uteri is reached. Where the person is very stout the difficulty of reaching the os uteri by the forefinger is often considerable, and unless the knees are well drawn up it may be well-nigh impracticable.

The annexed drawing, life-size (fig. 8), exhibits a lateral view of the interior of the pelvis. The straight line graduated in inches shows the direction and extent of an ordinary examination by means of the finger.

The changes produced by pregnancy will be presently described more particularly. The above remarks apply only to the uterus in the non-gravid condition.

On examination it may be found that the uterus is *altogether wanting* (see chapter on Uterine Malformations). The vaginal part of the cervix, as already remarked, is generally shortened in women who have had children; in some cases it almost entirely disappears. It occasionally happens that in such cases the *os uteri becomes occluded*, and no opening can be found. Cases have been recorded of women who were pregnant, and in whom this occlusion had occurred apparently soon after conception, an incision in the lower part of the uterus having been rendered necessary in order to effect delivery. It may be, then, that the os uteri is not to be felt because it has become occluded in the above manner; but the signs of pregnancy would under such circumstances be observed: or it may be that the *os is situated unusually high*, and is not readily reached, as is the case more or less in the last month or two of *pregnancy*: there the presence of pregnancy should suggest the explanation. Or the *vagina may have become narrowed and constricted* by inflammatory adhesions (after a difficult labour), and the vagina may appear to terminate lower down than is really the case. *Abnormities of the hymen* may lead to a like erroneous inference.

In *retroversion of the gravid uterus* the os uteri and the cervix uteri are often dragged up so high behind the pubic symphysis that no os can be felt. The same result may occur when *large tumours*, fibroid, ovarian, &c., occupy the pelvis. In cases of pregnancy, tumour, &c., dragging the os out of its place and so preventing its being felt by the finger, the pelvic tumour is so large that the explanation of the apparent absence of the os would be obvious.

SOFTNESS OF THE LIPS OF THE OS UTERI.—The physical conditions of the os uteri described as ‘hardness’ or ‘softness’ are perhaps the most important to which attention can be directed.

Normally, the textures of the os, under which term we may conveniently include the parts surrounding the aperture, are, in the virgin, firm and resistant, and a peculiar impression is conveyed to the finger hardly to be described in words. This is to be considered as its typical physical condition, and it is necessary to be familiar with it in order to be able to detect the variations from the healthy state.

*Pregnancy.*—Unusual softness of the os uteri and of its vaginal part is one of the signs of pregnancy, and, as such, deserves special and particular mention in this place. It is a peculiar kind of softness, giving the sensation of a soft texture overlying a harder one, and imparting a cushiony elastic feel, quite characteristic. It has been well compared to the sensation given to the finger when pressed into the glans penis in a state of erection.

FIG. 9.



The surface of the lips of the os are at the same time, in primiparæ, smooth and uniform; in multiparæ there may be fissures giving the lips a slightly lobulated arrangement. As regards the period of pregnancy at which this peculiar softness is observed, it is present during the second month pretty distinctly, but not so distinctly at this early period in primiparæ as in women who have already born children. At the end of the third or the fourth month, however, the softness of the os uteri is very distinctly present in most cases, and, what is very important, the softness becomes associated at about the fifth month, and subsequently, with a peculiar shotty feel, arising from the muciparous glands around the os uteri becoming enlarged. Moreover, the softness becomes intensified as pregnancy advances: in many cases I have found the lips in an almost spongy condition, from extreme softness, near the end of pregnancy. The existence of



this softness, and of the other physical changes, in the vaginal portion, forms a very strong presumption in favour of the presence of pregnancy. This is well shown in fig. 9 from a drawing by Dr. Farre. The softness alone, or a condition which at all events closely simulates it, is observed under other circumstances than pregnancy. The menstrual nixus is attended with a certain degree of softness of the part; but this could hardly mislead the observer if care were taken to make a second examination after the interval of a fortnight from the date of the first. Distension of the uterus, owing to the presence of fluid, a large polypus, hydatidiform degeneration of the ovum, may, each or either of them, give rise also to softening and fulness of the os in some degree simulating that due to pregnancy. In cancer of the cervix uteri there may be softness due to the presence of fungous growths, having a soft consistence, but in this case there is also *irregularity* of the surface.

As Montgomery observes, this softness of the os is most reliable from a negative point of view; thus, if the patient were supposed to be five months advanced in pregnancy, the absence of the softening would be strongly against such a supposition. This statement does not hold good in cases of cancer of the cervix uteri; in such cases there might be an absence of softness, and the patient might yet be pregnant. In ordinary cases, however, the presence or absence of this softening of the os and vaginal portion is extremely valuable from a diagnostic point of view.

Softness of the os is observed in cases of cauliflower excrescence of the os uteri. The softness due to this cause is, however, associated with a lobular enlarged condition of the lips and margins of the os uteri, eminently characteristic of the affection. In the very early stage of this affection, however, when the lips of the os are not much enlarged, this softness might, by a beginner, be possibly mistaken for that due to pregnancy.

The question as to the presence of undue softness of the os uteri is important in relation to the *condition of nutrition* of the organ. In another chapter it will be explained that one of the more important physical changes the uterus undergoes in cases of disease is a lessening of the proper hardness of the tissues, resulting in a condition of unusual softness of the tissues of the cervix appreciable to the touch on digital examination.

HARDNESS cannot be said to be diagnostic *per se* of any particular disease of the uterus. Normally, the degree of hardness presented to the touch is considerable, and if the shape and size

of the os and of the vaginal portion be not altered, the hardness alone is not significant. It would, however, enable us to decide against the presence of pregnancy in a case supposed on other grounds to have gone as far as the fourth or fifth month. Conjoined with *other* physical changes in the vaginal portion, irregularity, hypertrophy, &c. (see chapters on Cancer of the Uterus, Fibroid Tumour, &c.), it may become positively significative of other important conditions.

The os uteri is occasionally found to convey to the touch an impression as if hard rounded masses like shot, of variable size, were embedded in it. These bodies are the follicular glands of the part distended with accumulated secretion. It has been already mentioned that during pregnancy rounded bodies are usually found to be present in the substance of the os, and there seems to be an identity between the bodies in question and those occasionally met with in this portion under other circumstances, which may attain a larger size, and which have been termed by several writers *Ovula Nabothi*.<sup>1</sup> And in cases, to be more particularly referred to subsequently, where small cysts are found growing from the os, these cysts appear to have a like origin.

SIZE OF THE OS UTERI.—In the virgin, the uterus being healthy, the aperture is large enough to be just perceived by the touch. In the pregnant uterus the orifice enlarges, and at the fifth month is nearly large enough to admit the point of the finger. In the latter case, this enlargement of the orifice is associated with softening of the lips of the os, with the presence of the muciparous glands, uterine tumour, &c. When the orifice is so large as to admit the finger, softness being absent, this increase in size may be dependent on one of the several following conditions:—In cases of large fibrous tumours of the uterus encroaching on the cavity, the lips are separated to a considerable extent, but they are hard and firm. Such is also more usually the case where polypus of the uterus of large size is present. The separation of the lips occurs earlier in polypus than in cases of fibrous tumour.

The os is also widely open in cases of enlargement of the uterus due to deficient involution of the organ after delivery. In women who have been recently delivered an open condition of the os is necessarily present, and this condition of the os is a very valuable sign in cases where evidence of recent delivery is required for medico-legal purposes. Under such circumstances, also, the condition

<sup>1</sup> Some remarks on the nature of these bodies will be found in Dr. Tyler Smith's work *On Leucorrhœa*, p. 143.

of the os uteri is in other respects peculiar. It is soft, flabby, and relaxed. The open condition of the os gradually diminishes after labour, so that after two or three weeks the sign is no longer useful: in cases where abortion has occurred, the open state of the os after delivery is less marked, and it is a less decisive test than when delivery has taken place at full term.<sup>1</sup> The subsequent *progressive closure* of the os is a valuable diagnostic sign in these cases. (See also 'Examination by the Sound.')

An open condition of the os is found, often to a marked extent, in cases where the uterus is enlarged from the presence of chronic congestion. In cases of leucorrhœa connected with an increased action of the numerous glands of the cervix uteri, the os is open more widely than usual. In cases of cancer of the uterus, the aperture is often much larger than it should be, and the first stage of this disease has in this respect a great similarity to other conditions of less serious import. But in cases of cancer of the os uteri, the opening has lost its symmetrical shape: there is, moreover, irregularity, of a kind to be particularly described presently.

On the other hand, the *opening of the os may be too small*, or altogether wanting. If there be any reason to suspect that either of these conditions be present, as in cases of sterility, dysmenorrhœa, &c. &c., it will be necessary to resort to another method of examination, and to use the uterine sound as a probe. (See 'Examination by Sound.')

Lacerations of the cervix owing to injury during parturition are recognisable by the touch.

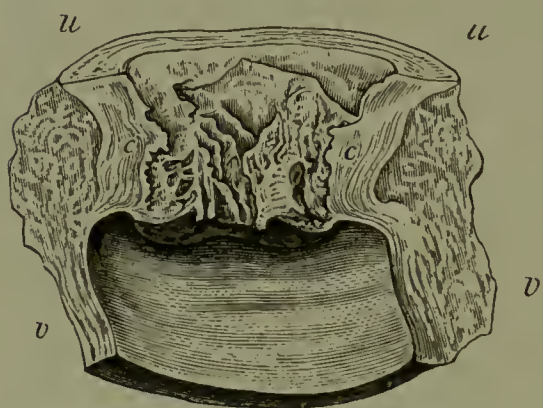
LENGTH OF THE VAGINAL PORTION.—Variations in respect to the vaginal portion of the cervix are important from a diagnostic point of view. In *pregnancy* there is a diminution in the length of the vaginal portion, the nature and degree of which must be now explained. In the first place, it is a mistake to suppose that there is a perfect regularity in the degree to which the abbreviation of the vaginal portion proceeds at the same period of pregnancy in all instances; in the second place, it must be recollected that comparative, not positive, measurements only are to be relied on. In order that we may draw correct conclusions in particular cases, it is necessary to be aware of the normal length of the vaginal portion in the case before us; after repeated pregnancies, the portion of the cervix projecting into the vagina becomes shorter and shorter. Normally, the vaginal portion

<sup>1</sup> A most valuable chapter *On the Signs of Delivery* will be found in Montgomery's work, *jam cit.*, p. 573.



begins to be reduced in length about the fourth month of pregnancy, and as pregnancy advances the shortening also progresses, until at full term the whole, or very nearly the whole, of the vaginal portion has been drawn up out of the vagina. The length of the cervix itself is very little altered during pregnancy; the apparent shortening is due to drawing up of the cervix out of the vagina, which process has the effect of reducing the length of the vaginal portion.<sup>1</sup> Fig. 10, copied from Dr. Farre's drawing, shows the extent to which the abbreviation of the vaginal portion proceeds at the eighth month of pregnancy.

FIG. 10.



This shortening becomes useful as diagnostic of pregnancy when the patient is under observation for some months, and it can be ascertained from time to time that a *progressive* shortening is actually taking place. If the other signs present be not against pregnancy, this is one of the strongest proofs in its favour. Enlargement of the uterus and softening of the os uteri would, under such circumstances, be associated with it. The vaginal portion

may be found *actually* shortened from several other causes—previous pregnancies, dislocation of uterus upwards by ovarian tumours, distension of uterus by large polypus or by fluid, as in cases of hydrometra, also from dragging of the uterus upwards by large fibrous tumours of the uterus. In cases of extra-urine pregnancy the shortening is wanting. (Kiwisch.)

#### EXAMINATION OF THE UTERUS BY MEANS OF THE SOUND.

‘It is possible,’ says Sir J. Simpson, through whom, in this country at least, the use of the instrument became known, ‘by the use of a uterine sound or bougie introduced into the uterine cavity, to ascertain the exact position and direction of the body and fundus of that organ; to bring these higher parts of the uterus, in most instances, within the reach of tactile examination; and to ascertain various important circumstances regarding the os, cavity, lining membrane, and walls of the viscus.’

<sup>1</sup> Dr. Matthews Duncan first forcibly drew attention to this important fact.



The sound itself is a slender rod of flexible metal, terminated by a slight knob at one end and by a flat handle at the other. It is graduated in inches, and at  $2\frac{1}{2}$  inches from the bulbed end it is customary to place a slight projection. The instrument is very slightly curved at this point. The bulbed extremity has a diameter of one-eighth of an inch. A second instrument provided with a much smaller bulbed extremity is sometimes useful.

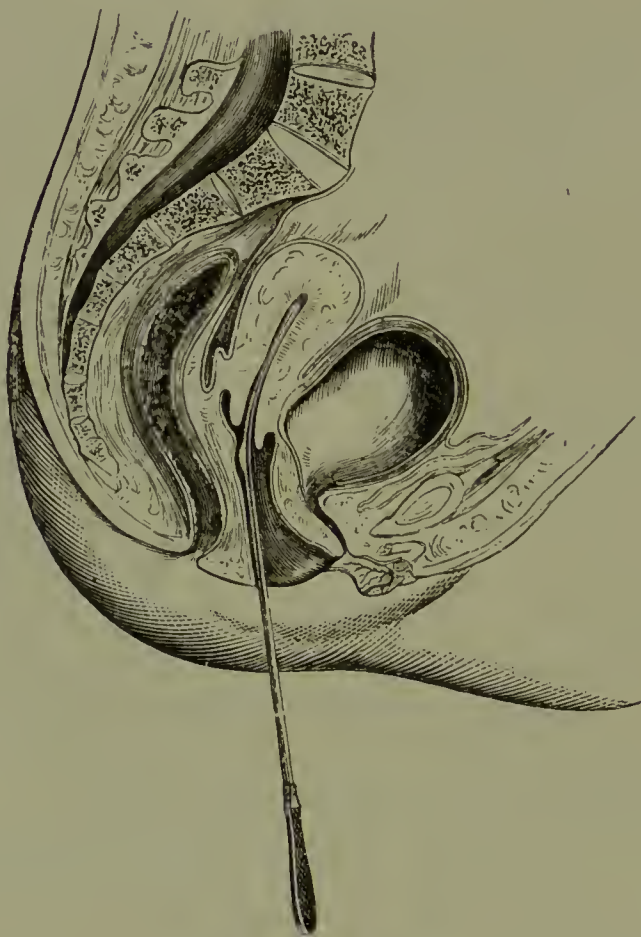
This instrument must never be used without a previous digital examination, and there are circumstances under which the uterine sound is not to be used at all—that is to say, where there is the slightest reason for suspecting that the patient is pregnant. The introduction of the sound into the uterus under these circumstances would almost inevitably occasion miscarriage or abortion. In cases where the patient is the subject of amenorrhœa, this caution is particularly appropriate; for during the early months of pregnancy she is sometimes unaware of her condition, or desirous of concealing the fact when known to her. Under such circumstances, the sign on which it is customary to place most reliance in deciding as to the propriety or not of using the sound is the presence or absence of *softness* of the vaginal portion of the cervix and of the edges of the os uteri; and, where the softness in question is detected, to refrain from using, or at all events to postpone the use of, the instrument until the nature of the case is made more evident in other ways. As it must be admitted, however, that the presence or absence of this sign is by no means a positively sure criterion, unless perhaps in very experienced hands, it will not be safe to rely exclusively upon it: it will be better in a case where there is the slightest doubt to be on the safe side.

Another caution is required. It is not so very uncommon for women to suffer from slight losses of blood at the beginning of pregnancy; such losses might be readily taken to be evidence of menstruation, and the sound might in such cases be injuriously used.

It has occasionally happened that the sound has been introduced into the pregnant uterus, and no evil result has followed. It is thus shown that the instrument may pass into the decidual cavity between the decidua uterina and decidua reflexa without *necessarily* inducing abortion.

As a general rule, patients experience no inconvenience from the use of the sound, if it be carefully introduced; but in a few cases the passage of the instrument gives great pain, and its use should not then be persevered in.

*Method of Introduction.*—The patient is conveniently placed for the use of the sound, either lying on the left side close to the edge of a high couch or bed, or lying on the back; as a general rule, the former position is preferable. The forefinger of the right hand is first introduced into the vagina, and the tip of the finger brought into contact with the os uteri. The uterine sound, previously warmed and oiled, is then lightly grasped by the left hand, and the point of the instrument carried slowly towards

FIG. 11.<sup>1</sup>

the os uteri, the forefinger of the right hand being made use of as a director. If these directions be well attended to, the point of the instrument is readily made to hit the orifice through which it is desired to pass the instrument. When the point of the instrument is engaged in the os uteri, the first part of the operation is completed.

The passage of the sound through the canal of the cervix and into the cavity of the body of the uterus requires very careful

<sup>1</sup> Fig. 11 represents the sound completely introduced, the position of the uterus normal.

management, and occasionally is only to be accomplished by those possessed of considerable dexterity. It is imperatively necessary to bear in mind that the introduction of the sound should be accomplished without using the smallest degree of force; resistance encountered is not to be overcome in this manner. Ordinarily, if the operator has introduced the sound in the proper direction, the curvature of the instrument and the curvature and direction of the canal being identical, the instrument is easily made to pass upwards until the knobbed extremity reaches the fundus uteri. Normally, the canal of the uterus passes at first upwards in the direction of the pelvic axis,<sup>1</sup> but higher up there is a slight inclination forwards. As a matter of practice I find it best to use a sound which is really almost straight, as represented in the figure. It is a great mistake to use an instrument sharply curved. If the uterus be of the average size, the instrument can be introduced  $2\frac{1}{2}$  inches beyond the os uteri, and the projecting elevation on the convex side of the curve of the sound is felt by the forefinger to coincide with the os uteri. When the sound has been introduced a couple of inches, greater care is required in pushing it onward. It occasionally happens that the tissue of the uterus is diseased, and so soft that an instrument such as the uterine sound may be driven through the fundus by the exercise of force not very great in amount. The advisability of avoiding all risk of such an accident need not be enlarged upon.

The sound is sometimes used through the speculum. It is far preferable, however, to introduce the sound in the manner above described; I believe that there is far more risk of doing injury to the uterus when the sound is used in conjunction with the speculum.

Supposing that an impediment is encountered to the introduction of the instrument, this may proceed from one of the following causes:

*The Point of the Instrument is not directed in the Axis of the Canal.* This is the most common cause of difficulty, and it is one which is only to be got over by practice. It is often necessary to withdraw the instrument and bend it so as to give it a different

<sup>1</sup> The question as to what is the normal direction of the uterine canal has excited much discussion. I believe that, as stated in the text, it is gently curved, the direction closely approaching that of a line passing successively through the axes of the brim and of the cavity of the pelvis. Dr. Meadows, who has written a careful criticism on the subject (*Lancet*, 1868, vol. ii. p. 71), believes that the canal is 'straight throughout its course, its axis being identical with that of the pelvic brim or inlet.' See further remarks in chapters on 'Flexions.'



curve. If the actual direction of the vaginal portion of the cervix be previously ascertained by digital examination, this difficulty is less likely to occur.

*The Os is not pervious to the Instrument.*—This is a cause of difficulty which is generally anticipated by digital examination, for the practised touch easily recognises the presence or absence of the depression and opening of the os uteri. In cases where the finger fails to find an aperture, it is necessary to have recourse to the speculum, in order to ascertain by actual inspection of the part whether a minute opening can be detected. The absence of

FIG. 12.



an opening is rare; such a condition is, in most instances, a congenital one, and the patient has never menstruated. In a few cases, however, the os becomes sealed up, no trace of its existence being observed, in women who have had children, and also, rarely, in women who have been subjected to operations the nature of which is such as to lead to contraction of the tissues around the os uteri.

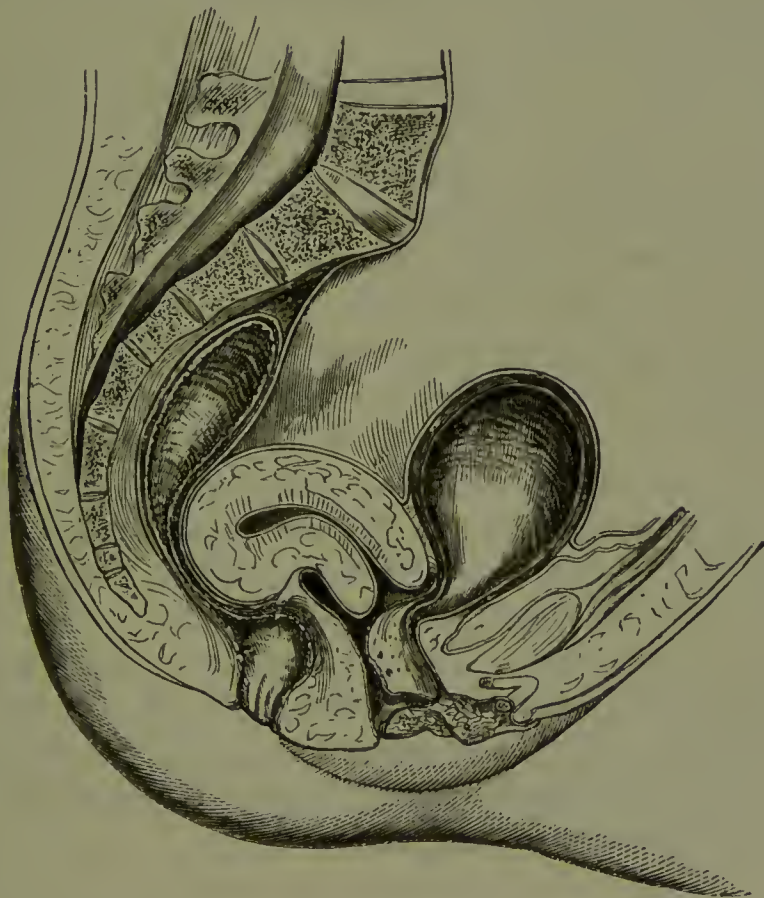
*Contraction of the Canal of the Cervix.*—When the instrument is engaged in the canal, its further passage may be prevented by contraction of the canal itself. It is not very common to meet with an obstruction to the passage of the instrument, from this cause at least,

lower down than 1 inch or  $1\frac{1}{2}$  inch from the os uteri, although the occasional existence of contraction at this point, congenital or acquired, is not to be denied. The cavity of the cervix uteri is tolerably capacious, but at its superior termination—the *internal os*—the canal is ordinarily narrowed; and in the nulliparous uterus it is customary to find that when the instrument reaches the point of junction of the cavity of the cervix and the cavity of the body of the uterus, there is a slight resistance. The nature and kind of resistance here alluded to will be better understood by reference to fig. 12, copied from an exceedingly accurate drawing by Dr. A. Farre. It represents a section of the uterine cavity, and the extent and direction of the cervical canal.



In women who have had children, however, this kind of difficulty no longer exists. Without exercising anything like forcible pressure, this ordinary resistance, as it may be termed, is readily got over. It requires care to discriminate between contraction and those other conditions which may impede the progress of the instrument, next to be alluded to.

*The Point of the Instrument may become engaged in one of the Lacunæ or Depressions of the Cervix Uteri* and its further progress arrested thereby. This is one of the most common

FIG. 13.<sup>1</sup>

causes of difficulty in introducing the uterine sound. By gently withdrawing the instrument and again introducing it, at the same time slightly altering the direction in which it is pointed, this kind of difficulty will be readily overcome.

The point of the instrument may be arrested by the *existence of curvature or distortion of the canal of the uterus*. When the uterus is bent backwards (retroflexion) or forwards (anteflexion), the instrument is stopped abruptly at the seat of the flexure. When the resistance met with is due to retroflexion, a tumour may

<sup>1</sup> Fig. 13 represents retroflexion of the uterus.

be felt behind the upper part and back of the vagina—the fundus uteri; and it is necessary, before introducing the sound, to turn it so that the concavity is directed not forwards, but backwards. With a little management, the sound then passes round the curved part of the uterine canal, and backwards into the centre of the fundus uteri. In like manner, in the case of ante flexion, the obstacle to the introduction of the sound is to be removed by giving the instrument a sharper curve forwards than usual, the concavity in this case being directed anteriorly or by pressing the handle backwards. Further remarks on the subject of the use of the sound when the uterus is flexed will be found in the chapters on ‘Flexions of the Uterus.’

In cases when the sound does not readily pass, it is a good plan to use the speculum, to draw the anterior lip of the os down gently by means of a small tenaculum hook, and then to introduce the sound. The canal is thus drawn more nearly straight and the entry of the sound facilitated (see fig. 15).

In the use of the sound we have, of course, a very complete and easy method of measuring the *length of the cavity* of the uterus. These variations are themselves signs of great value in the diagnosis of uterine disease; the deductions to be drawn therefrom are now to be pointed out. Professor Simpson has, in one of his original memoirs on the uterine sound, so fully considered this branch of the subject as to leave little to be added. In the subsequent remarks, I have chiefly followed the account given in the memoir in question. The usual length of the uterine canal from the os to the fundus is  $2\frac{1}{2}$  inches, but a slight increase or a slight diminution of this measurement (*e.g.* to the extent of  $\frac{1}{4}$  inch) is very frequently observed, and quite consistently with the uterus being in a healthy state.

#### THE LENGTH OF THE UTERINE CANAL GREATER THAN USUAL.

This may be caused by any one of the following conditions:—

*Recent Delivery.*—If the woman has had a child, the increased length may be due to a persistence of the hypertrophy with which the uterus is affected in consequence of pregnancy. After delivery the uterine cavity measures from six to eight inches, and this measurement is found gradually to diminish, until after six or eight weeks it resumes, under ordinary circumstances at least, its previous size.

*Longitudinal Hypertrophy of the Uterus* is another condition

of the organ in which the sound passes inwards for a greater distance than usual. This species of hypertrophy occurs quite independently of pregnancy. For the most part the cervix of the uterus is the portion affected: this is lengthened out and extended, whereas the cavity of the body of the uterus remains nearly as usual, or, at all events, participates but little in the change.

In many cases where the uterus is apparently prolapsed, the os uteri being very low down, this does not proceed from prolapsus of the whole organ, but from the presence of hypertrophy and elongation of the cervix alone, of that part of the cervix which is above the vagina. The sound, when used under these circumstances, is a most valuable means of diagnosis. In prolapsus constituted by hypertrophic elongation of the cervix, the sound can be made to pass upwards for a much greater distance than usual. Dr. Simpson mentions cases in which it passed inwards to a depth of four or five inches; and Huguier, whose observations are more recent and extensive, in an average of a large number of cases, found the length of the uterine canal to be  $4\frac{3}{4}$  inches; in extreme cases, a length of 9 inches was attained. In cases which I have examined, with the object of testing Huguier's statements, I have found the length of the uterine canal to amount to as much as  $6\frac{1}{2}$  and 7 inches. There is a fallacy connected with the use of the sound in these cases, with which it is well to be acquainted, in order that an erroneous inference may not be drawn. The sound is sometimes arrested two inches or so from the os uteri, by the curve which the lengthened cervix uteri makes at this point, and in one instance I found it necessary to pass the finger into the rectum, when, by pressing against the convexity of the curve in question, the sound readily passed inwards between two and three inches further. We have two categories: (*a*) those in which the *cervical* cavity is lengthened and at the same time prolapsed; and (*b*) those in which the *uterine and the cervical cavity* are both lengthened, the os uteri remaining at or about its usual place, at the summit of the vaginal canal, or not remaining in this position. I have seen a case in which tumour of both ovaries was present, the upper part of the uterus was dragged up, and at the same time the lower part was pushed downwards. The canal of the uterus had an excessive length. (See 'Prolapsus.')

*Fibroid Tumours of the Uterus* frequently occasion a considerable increase in the size of the cavity of the organ—a circumstance rendered evident by the use of the sound. The size of the



tumour may, however, be considerable, and the size of the uterine cavity remain unaffected. The increase in the length of the uterine cavity due to the presence of fibroid tumour may reach to such an extent that the sound passes in to a depth of 6, 7, or 8 inches, a possible fallacy Sir J. Simpson calls attention to in connection with this subject. In long-standing cases it sometimes happens that the pressure produced by large fibroid tumours occasions the opposite sides of the uterine cavity to adhere, and the sound is arrested some distance below the real position of the fundus uteri.

The diagnosis between lengthening of the cavity caused by dragging of the fundus of the uterus upwards, and that caused by the presence of fibroid tumour in the walls of the uterus, turns on the relation which is found to subsist between the sound while in the uterus, and the tumour occupying the pelvis and projecting upwards in the hypogastric region. As a general rule, when an ovarian tumour is dragging the fundus uteri upwards, and thereby lengthening its cavity, the sound is found to be anterior to the tumour. To this rule there may be occasional exceptions; and when the tumour is situated laterally in reference to the sound, this means of distinguishing between the two is not available. When the tumour dragging up the uterus is extra-uterine, one side and corner of the uterus is generally more drawn up than the other: this gives the course of the sound upwards a certain obliquity, often characteristic.

*Fibroid Polypus of the Uterus.*—When the polypus remains within the cavity of the uterus, the length to which the sound can be introduced is increased in proportion to the size of the polypus. By means of the sound, a very perfect idea can sometimes be obtained of the relations and place of attachment of the polypus, for the point of the instrument can be made to travel round the included mass between it and the uterine walls. Care must be exercised not to fall into the error of taking the pedicle of the polypus for the summit of the uterus; it is possible for the point of the sound to be arrested at this point when first introduced.

*Hypertrophy of the Uterus.*—The increased length of the uterine cavity may be due to hypertrophy of the organ, a condition which is now and then found to be present, unassociated with any of the conditions causing lengthening of the cavity hitherto described. The lengthening which occurs in connection with this condition is never very considerable in amount, the measurement not generally exceeding  $3\frac{1}{4}$  to  $3\frac{1}{2}$  inches. This hypertrophy of the



uterus, and consequent lengthening of the canal, may be due to long-continued congestive hypertrophy of the uterus, repeated miscarriages, or to defective involution of the uterus persisting for a long time after delivery.

In *cancer of the fundus of the uterus*, the organ might be found unduly lengthened, without marked evidence of disease of the same kind at the cervix. In the very rare disease, *tubercle of the uterus*, elongation and increase in the size of the organ have been observed to be present.

Lastly, in cases of *undue patency of the Fallopian Tube*, the sound may pass to an unusual length. It is always necessary to examine carefully into the previous history of the patient, and to compare the results of examination by the sound with those derived from examination of the hypogastric region of the abdomen, and it is advisable to come to no conclusion until a combined examination by the sound internally, and by the hand placed over the hypogastrium, has been performed.

#### THE UTERINE CANAL IS SHORTER THAN USUAL.

When the depth to which the sound can be introduced is less than usual, this may proceed, following Sir J. Simpson's classification, from one of the following causes:—

*Preternatural Shortness of the Organ generally, a congenital Condition.*—This congenital shortness of the canal is met with where the uterus is imperfectly developed, the whole organ being smaller than usual, or in cases in which the organ is unequally developed on the two sides. The condition of the external generative organs may be apparently quite normal, and the sexual instinct present to the usual degree, and yet there may be imperfect or defective development of the uterus itself. The uterus may be double, or one side only may be developed, or one side may be developed to a certain degree, and on the other side may be found a less fully developed cornu. These conditions are not frequently met with in practice,<sup>1</sup> but the possibility of their occurrence must be kept in view, or the results of examination by the sound might prove embarrassing.

*Stricture of the Uterine Canal or partial Obliteration due to Pressure of Tumours, &c.*—The apparent shortening of the canal

<sup>1</sup> For further information on this subject the reader is referred to the work of Kussmaul, *Von dem Mangel, der Verkümmerung und Verdopplung der Gebärmutter*. Würzburg, 1858.

due to stricture has been already alluded to in speaking of the difficulties attending the introduction of the sound. In old people the internal os uteri, which is the point at which the stricture, when present, usually exists, is often obliterated (Mayer, Matthews Duncan). The cavity of the uterus proper—that is to say, the portion above the internal os uteri—may also be obliterated, and the sound is then arrested at the same point. When the canal is obliterated by *pressure*, as by large fibroid tumours growing in the walls of the uterus, shortening of the canal may be a consequence.

*Partial Inversion of the Uterus.*—The shortening due to partial inversion could not possibly be mistaken for that due either to stricture or imperfect development of the uterus. In partial inversion, there is a tumour projecting from the os uteri; the sound passes into the os uteri by the side of this tumour, but cannot be introduced so far as usual. Practical experience has shown that, in some cases, the diagnosis between partial inversion and polypus of the uterus is one of the extremest difficulty; but with the aid of the data obtainable by a careful use of the uterine sound, we may hope to surmount this difficulty. The important diagnostic fact is, that the sound passes inwards to a less depth than usual on *all sides* of the projecting mass. If the case be one of polypus, the sound passes inwards to the usual extent, and the hand over the hypogastric region discovers the fundus of the uterus in its usual place. When polypus is *combined* with partial inversion the difficulty is greatly increased, and in such a case careful measurement of the depth of the cavity, examination of the tumour itself, examination *per rectum*, and of the hypogastric region, must all be brought to bear in forming a decision.

*Atrophy of the Uterus* is in rare instances observed after labour; here also the cavity of the uterus is found to be shorter than natural.

Lastly, the caution may be repeated, that flexion of the canal, causing arrestment of the progress of the instrument, *may* be confounded with actual shortening.

#### EXAMINATION OF THE OS UTERI BY MEANS OF THE SPECULUM.

By the use of the instrument known as the ‘speculum,’ we are able to obtain ocular evidence of the condition of that part of the uterus which projects into the vagina, and of the orifice or os uteri.

The speculum should never be used without a previous digital examination. The digital examination will be the means of informing us whether the state of the parts be such as to render it unadvisable or impossible to use this instrument. Further, a knowledge of the size, length, &c., of the vagina, ascertained by means of a digital examination, is necessary in order that the instrument selected may be adapted to the peculiarities of the case. The use of the speculum is objectionable in the case of young unmarried women, and more especially in those in whom the hymen is intact. For purposes of diagnosis the use of the instrument can but rarely be considered necessary under such circumstances. In cases of cancer of the uterus the instrument should be used with great care: hæmorrhage of a serious character may be set up by careless employment of the speculum under these circumstances.

The cases in which the speculum is most commonly used for purposes of diagnosis are the following: Cases of obstinate leucorrhœa in which there is reason to suspect the presence of an abnormal condition of the cervix uteri and of the glands there situate; cases of menorrhagia, or recurring hæmorrhage, for the purpose of ascertaining the presence or absence of small polypoid growths within the os uteri, and which may be so small as not to be detected by digital examination; cases in which it is considered advisable to examine ocularly the condition of the portio vaginalis and os uteri, and thus of obtaining evidence as to the presence and nature of ulcerations, abrasions, excoriations, lacerations, &c., of the parts in question. It is employed in cases in which it is considered advisable to explore the interior of the uterus itself, to facilitate, in some cases, the use of the uterine sound, and it is essential in the performance of some operations involving the cervix or os uteri.

*Method of using the Speculum.*—The mechanical contrivances for getting a view of the os uteri are very numerous. Simple tubes, tubes slit up into two or three segments, and lastly the duckbill univalve instrument—known as Marion Sims's—have been successively employed. It is needless to describe these various instruments in detail.

The two instruments which are, in my opinion, best adapted for the purpose are a short bivalve instrument (a modification of Cusco's speculum) and Sims's speculum.

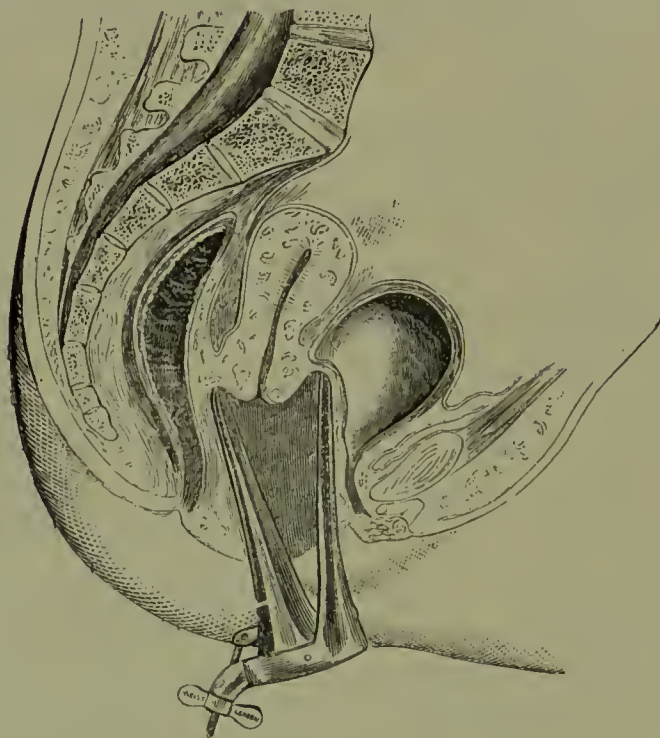
The modified Cusco's speculum I have used for some time, but the one I employ is large at the mouth, and very portable. Messrs.



Weiss have improved the method of separating the blades, and it is now a very complete instrument (figs. 14 and 16). It has the advantage of bringing the os uteri near to the ostium vaginae, a most important point, and the aperture or mouth being large ( $1\frac{1}{2}$  in. by  $1\frac{3}{8}$  in.) great facilities for operations are offered. Its length is only four inches. It is kept in place by its own action and requires no assistant.

In using this instrument, the patient should be placed on the side with the knees drawn up, and the hips, a little higher than the thorax, should be quite at the edge of the examining couch. The speculum previously oiled and warmed, is introduced in the

FIG. 14.



collapsed shape, and care taken to direct it backwards. The chief difficulty is at the ostium vaginae, but this is overcome by drawing the fourchette a little back with the forefinger of the left hand, and inserting the speculum just at first a little obliquely as regards the plane of the aperture. It should be passed as far as possible before screwing the blades open, and when the screw has been turned about three times it should be ascertained whether the os uteri is in view. It frequently happens that the speculum has now to be directed a little more backward, in order that the os may be brought into view. The further separation of the blades is then effected. When the vagina is very long and narrow this speculum does not answer quite so well, but if the vaginal

aperture be dilatable it is of great service, for in separating the blades the os is brought down into view by a mechanism which will be sufficiently obvious. In cases where the ostium vaginæ is very narrow, a smaller-sized instrument of the same kind would be required; but under such circumstances the use of the speculum is not often necessary. In withdrawing the instrument it is best to allow the blades to collapse to within half an inch of each other, so as to prevent the vaginal walls being caught between them.

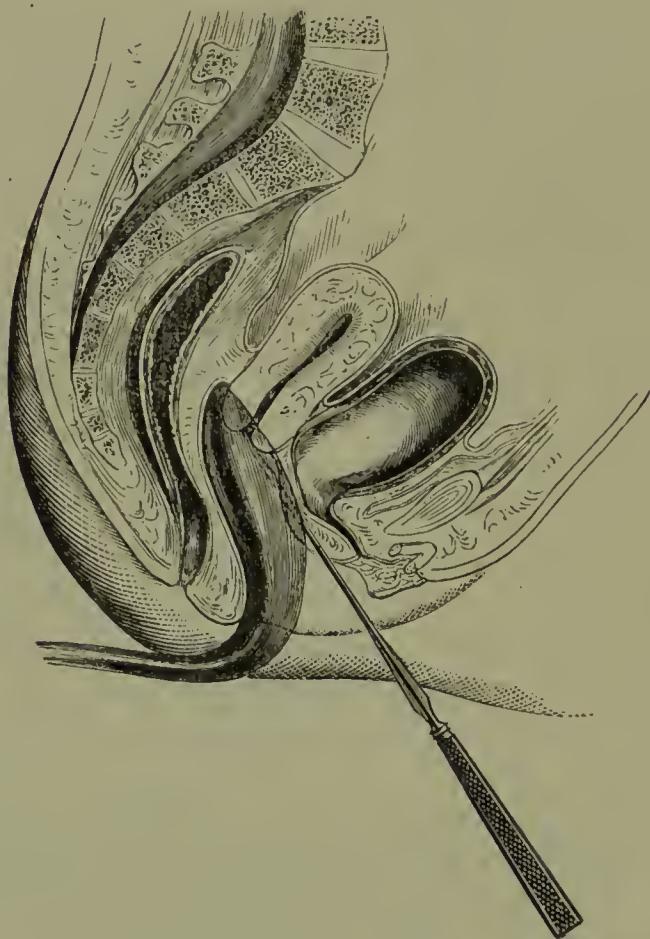
The drawing (fig. 14) shows the position of the instrument when introduced and the blades separated to an average extent ( $1\frac{5}{8}$  in.). It will be observed that a good deal of the length of the instrument is expended on the vulva. A great merit of this instrument is that it expands the vulvar part of the canal.

Dr. Meadows's speculum, made by Mayer and Meltzer, somewhat resembles Cuseo's, but two lateral additional blades are provided so as to separate the vaginal walls laterally. Further, the distal end is smaller, so that it is a little more easy of introduction than the one above described.

Another speculum is that of Dr. Marion Sims, and a most valuable one it is. It is kept in two sizes, giving thus the advantage of *four* blades, each of different width. This instrument requires the aid of an assistant. It is necessary to pay particular attention to the placing the patient in a proper position. The patient must be placed as follows: Having been brought quite to the edge of the couch, which should be about the height of an ordinary table, she is laid on the side, and the knees drawn up to the abdomen. The left arm is then placed at full length behind the back. This throws the chest a little forwards. I have found it best also to raise the hips by means of a thin hard pillow or otherwise. The speculum is then introduced, care being taken to keep the point of the blade close to the posterior wall or floor of the vagina. The larger or smaller blade is used according to circumstances. When the blade is in situ, the whole instrument is pulled backwards in such a manner that the whole of the floor of the vagina is pressed against the rectum. The perinæum is thus stretched, and at one and the same moment the ostium vaginæ and the vaginal canal are dilated. The fundus of the uterus falls a little forwards in consequence of the position of the patient, and air of course enters the vagina. It is found that in some cases a perfect view is now given of the os uteri. In others the bladder and

anterior vaginal wall project backwards so as to impede the view, and when this happens the uterine sound or the finger must be used to push the projecting part aside, or, what is still better, a hook may be fixed into the anterior lip of the os and the uterus gently drawn down. Dr. Sims uses a small delicate tenaculum hook for this purpose. The one here figured (fig. 15), and which I have been in the habit of using, is a little firmer and stronger, and more bent back. It will be found that in drawing down the uterus it is necessary simultaneously to draw the speculum a little in the same direction.

FIG. 15.



A self-retaining Sims speculum has been a good deal employed in America. By the use of this instrument the aid of an assistant can be dispensed with. Both Mr. Spencer Wells and Dr. Savage have also introduced instruments constructed on the same principle.

The view of the os and cervix uteri afforded by the Sims speculum is exceedingly good. Manipulations on the parts in question are effected with extreme facility. The use of the hook is not attended with any bad result, but when the patient is straining, as not un-



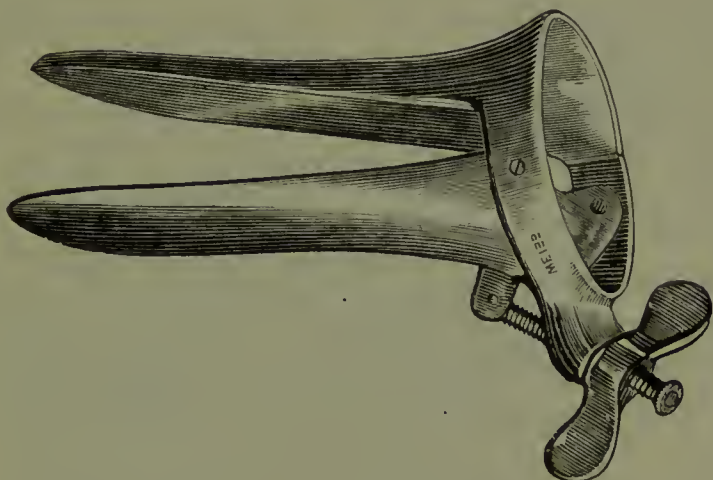
frequently happens during the exhibition of anæsthetics, care is required so as not to lacerate the parts.

Fig. 15 represents the large blade in situ, as when first introduced. The hook having been inserted is drawn down about an inch in the direction of the vulvar aperture, bringing the os uteri with it.

In some cases the bivalve instrument is better than the univalve; but where assistance is easily procurable the latter is very much to be preferred.

The bivalve instrument (fig. 16—Cusco improved by Weiss), as above described, is so superior to the older bivalve instruments, that I do not describe them. The tubular glass speculum—known as Ferguson's speculum—is also very inferior to it. Neugebauer's

FIG. 16.



is a bivalve speculum, the two blades being distinct and separate. Dr. Barnes ('Obstetrical Transactions,' vol. xiv. p. 309) describes and delineates an improved form of this instrument.

In a few instances, as when the speculum is used to explore the condition of the vesico-vaginal septum in cases of fistulæ, it is advisable to place the patient on her hands and knees, so as to give the observer a good view of the roof of the vagina. The univalve speculum is the best to use in this class of cases.

The bivalve speculum may be used with the patient in the lithotomy position, but the other plan is far preferable. It is generally necessary, by means of a dossil of lint held at the extremity of a pair of long dressing forceps, to remove the secretions with which the surface of the exposed part is covered, in order that the mucous membrane itself may be inspected.

## APPEARANCES AT THE OS UTERI OBSERVED BY THE SPECULUM.

The '*os uteri*' is the lower opening of the canal of the cervix. It is a round opening, occasionally, however, transverse in shape, bounded by two 'lips,' an anterior and a posterior; the lips are smooth, uniform, and regular, when the woman has had no children, but the surface is more or less fissured, the os uteri being bounded by less regularly formed lips in women who have had children. The virgin os uteri is, when normal, uniform, the vaginal portion regular and conical in shape; that of multiparæ is larger, irregular, and usually softer.

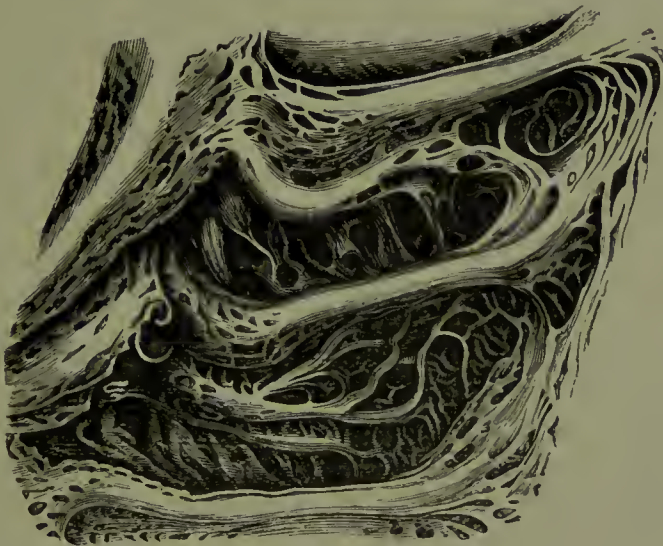
The appearances presented by the surface of the os uteri it is particularly important to bear in mind. The lips of the os uteri—that is to say, the surface of these lips—present an appearance very different from that which is observed in the *interior* of the os uteri, and under ordinary circumstances the view obtained by the speculum is not simply that of the labia of the os, but of a portion of the interior of the cervix also, which has a tendency to be opened out by the action of the speculum. The surface of the interior of the cervix differs greatly in appearance from that presented by the surface of the labia, both in regard to the colour and in other essential particulars, and there is an abrupt line of demarcation always evident, and generally remarkably so, between the surface of the interior of the cervix and that of the labia of the os uteri.

The *lining of the cervix uteri*—the minute anatomy of which was first thoroughly described by Dr. Tyler Smith—is not smooth, but furrowed and plicated so as to present numerous depressions and elevations (see fig. 17), by which the amount of surface is very largely increased. The arrangement of the folds or plicæ varies in different cases. There are usually four prominent elevations longitudinally placed, and four columns of rugæ or folds of mucous membrane; and lateral transverse branches are given off from these, the whole thus acquiring a palmated aspect; and between these different elevations are seen others more minute. The whole surface thus presents a cribriform aspect. The observer, under ordinary circumstances, sees the lower and a small portion only of the surface of the interior of the cervix.

Contrasting with the cribriform irregular surface just described, the labia of the os uteri present a smooth uniform mucous surface. The labia may themselves be lobulated, and

thus irregular, but the surface itself is smooth and uniform. The epithelium covering the labia is of the squamous variety, identical with that lining of the vagina, but *within the cervix* the epithelium changes, and the surface is covered by cylindrical epithelium. Higher up within the cervix, and therefore usually beyond observation by means of the speculum, the epithelium becomes ciliated.

The surface of the labia of the os uteri is covered by a somewhat thick layer of squamous epithelium, as already remarked. Beneath this epithelium is a fine basement membrane, and these two cover certain important structures—the *villi* or *papillæ*. These are long, single, or bifurcated, vascular bodies,

FIG. 17.<sup>1</sup>

sometimes so large as to be visible to the naked eye. They are rendered evident by mascerating the cervix uteri in water, when, the epithelial covering becoming detached, the villi are seen forming an irregular fringe over the whole surface. *Within the cervix* there are also villi of a somewhat analogous character, but not bound down and hidden by epithelium as in the other position, and the villi are three or four times larger: they contain in both situations looped blood-vessels. The interior of the cervix further differs from the labia of the os uteri in being provided with an enormous number of mucous crypts capable of pouring out secretion in large quantity, whereas there appears to

<sup>1</sup> Fig. 17 is a magnified representation of the interior of the cervix uteri. (From Tyler Smith.)



be an almost entire absence of these glandular organs in the mucous membrane covering the labia.

Thus, if the whole of the epithelial covering were removed from the surface of the labia of the os uteri there would be presented to the eye a bright red, somewhat irregular, surface constituted by the free extremities of the villi in question. An appearance somewhat similar to this is normally presented in the cavity of the cervix by the villi there situate, but in the latter position the cervix is more irregular, due to the large size of the villi, and of a deeper red, owing to their greater vascularity.

#### EXAMINATION OF THE OVARIES.

In a state of health it is not easy to determine the outline and position of the ovaries by means of the touch, in consequence of their position. Ordinarily there is sufficient space between the upper part of the vagina and the ovary to prevent the finger easily touching the ovary. In order to practise digital examination of the ovary, the patient should be placed on the side with the knees well drawn up, and the finger passed as high as possible in the vagina. The point of the finger may then be pushed in the direction the ovary is known to lie in until its presence is made evident. The resistance of the tissues is in a state of health considerable, and much pressure may be required to reach the surface of the ovary and define its outline. The ovoid shape of the ovary and its size, together with a certain degree of mobility, are the characteristics to be sought for. When the ovary is displaced from its proper position, or when it is enlarged, it is much more readily felt. On the other hand, when it is bound down by adhesions it may be difficult to recognise it.

In some cases a double examination is practicable, the fingers of the other hand being pressed downwards from above through the brim of the pelvis. The success of this manœuvre depends on the abdominal muscles being lax and thin, and on the absence of a layer of fat in the parietes of the abdomen. In a few cases, by means of the double touch, as above described, the outline and size of the ovaries can be very accurately determined.

There are other objects liable to be met with on exercising a digital examination. In cases when the Fallopian tube is enlarged or dropsical the enlargement might be confounded with the ovary, or portions of the intestine descending into the Douglas pouch might possibly simulate the outline of the ovary.

## CHAPTER IV.

## SYMPTOMATOLOGY OF DISEASES OF THE UTERUS.

LIST OF SYMPTOMS OBSERVED—Uterine Dyskinesia, its Importance and Frequency—Hysterical Symptoms—Cerebral Symptoms.

THE method ordinarily pursued in describing the diseases of the female sexual organs is to arrange the subjects under various heads—some of these heads representing the diseases regarded from a pathological point of view, others being merely names of symptoms. ‘Inflammation of the uterus’ and ‘Leucorrhœa’ may be given as specimens of this nosology—the first implying a pathological notion, the second being only a symptomatic expression.

The method of clinical observation I have pursued has made me acquainted with certain important omissions in regard to the symptomatology of uterine diseases. I have always adopted the practice of questioning patients particularly as to the sensations or pains or discomforts which they experience. These are found to constitute some of the more important of the symptoms presented by patients, and when due care is taken to put no leading questions, but to allow the patient to give her own reasons for obtaining medical advice, and in her own words, very valuable data can be obtained—data which when properly arranged are highly instructive and often capable of throwing great light on the diagnosis of the case. The following is a list of symptoms of all kinds which may be observed in connection with the diseases or affections of the female sexual organs, these symptoms being placed as nearly as possible in their order of frequency. This list of symptoms I have on another occasion made the basis of a *clinical* discussion of the subject,<sup>1</sup> and I here reproduce it:—

Pain (in the region of the uterus, or near it)—

1. Spontaneous.
2. Produced by motion (uterine dyskinesia).
3. Undue sensitiveness to the touch.

<sup>1</sup> Harveian Lectures, *The Mechanical System of Uterine Pathology*. Longmans, 1878.

Leucorrhœa.

Dysmenorrhœa.

Menorrhagia.

Amenorrhœa.

If married—Sterility, abortions.

Various reflex phenomena :—

1. Sickness or nausea.

2. Hysteria.

3. Convulsions.

4. Cephalalgia.

5. Melancholia.

Disturbance of functions of the bladder.

Disturbance of functions of the rectum.

Disturbance of sexual functions (dyspareunia).

A noticeable fact in connection with the symptomatology of uterine diseases with which my observations have made me acquainted is the remarkable frequency of a symptom which has attracted very little attention at the hands of writers on uterine diseases, but which is so very frequently present that I have come to regard it as very important. I refer to the symptoms standing second in the list of symptoms just enumerated—viz. pain in the neighbourhood of the uterus produced by motion. I have termed it *uterine dyskinesia*. By this is meant a painful sensation, or actual pain, or discomfort of any kind, and felt either at the back of the pelvis, or in front, or at the side, but always produced, or originated, or aggravated by some movement of the body by standing, or walking, or stooping, sometimes even by sitting. This uterine dyskinesia is really more commonly observed than almost any other symptom. I think it desirable to draw attention thus prominently to it, not only on account of its great frequency, but on account of the fact that it appears to be so important a symptom. Important for two reasons: firstly, because patients themselves so constantly allude to it, and desire to be relieved of it; and secondly, because it suggests at once the importance and preponderance, as causes of suffering and discomfort, of distortions, flexions, and changes of position of the uterus. The frequency of the symptom has led me to carefully investigate its source and origin, and with the result that I have been led to regard these distortions of the uterus as playing a part in the female economy second to no other in causing suffering, pain, discomfort, and chronic incapacity for work and various kinds of exertion. Although in a



few cases the dyskinesia is traceable to disease of the ovary, in the very large proportion of cases it is the uterus which gives rise to the occurrence of the symptom in question.

Another symptom in the above list is undue sensitiveness of the uterus or parts adjacent to the touch. One class of cases is that in which the condition present is that termed by Dr. Gooch the 'irritable uterus.' These cases, as will be found fully set forth in later chapters, can be now satisfactorily explained and shown to be cases of acute flexion of the uterus accompanied with congestion, the extreme sensitiveness and tenderness being due to this congestion and distortion of the organ.

A series of symptoms often observed in women are the 'hysterical symptoms' so called. In truth the relation of the nervous system to the sexual organs in women is one requiring a quite separate and full consideration if there were time and opportunity for it. These so-called hysterical symptoms are deserving of a very attentive inquiry in view of the recent additions to our knowledge of the diseases of the sexual organs. The more rational and simple explanations which can now be given of various hitherto obscure symptoms liable to be observed in women will be found to extend themselves to the peculiar nervous manifestations hitherto described as 'hysterical;' and for my own part I am quite convinced by the numerous carefully observed facts which have come under my notice, that many of these hysterical symptoms can no longer with any degree of exactness be regarded as 'fanciful' and intangible and unexplainable, but that they will be found susceptible of a simple interpretation.

We may even go further than this. There appear to be very good grounds for the belief that some few at all events of the cases of 'mental' disease, long regarded as calling only for the attention of the alienist physician, are really insanities produced by diseases of the sexual organs, susceptible of treatment and relief at the hands of the gynæcologist. This is a subject which has attracted some attention in the United States at the hands of Dr. Storer, Dr. Pallen, and others. An eminent physician in New York—Dr. Peaslee—recently stated in a discussion at a medical meeting in New York that he had met with, in asylums for the insane, several cases of women where the cause proved to be curable ovarian or uterine disease.<sup>1</sup> In my own practice I have encountered cases of a like character.

<sup>1</sup> *Amer. Journ. Obstet.*, vol. x. pp. 206, 284.

## CHAPTER V.

## GENERAL PATHOLOGY OF THE UTERUS.

HISTORICAL SUMMARY.—The Mechanical System of Uterine Pathology—Definition—Laceration of Cervix Uteri.

MANY important points in relation to the pathology of the uterus, and which have been the subjects of much dispute, if they are not yet positively settled, are in process of settlement. Or at least it may be said that some things may now be taken for granted which would have been contested, and which in fact were violently contested, some seven years ago. The force of opinion is now undeniably on the side of what may be termed the new views on the subject of uterine pathology, although there are not wanting authorities who are still content to travel on the old lines.

It may be necessary to recapitulate a little, but in setting forth what appears to the writer to be a just and proper representation of uterine pathology as it stands to-day, the main object will be rather to represent the present, and to endeavour to connect it with the future, than to go at any great length into historical reminiscences.

It appears probable, judging from hints and statements scattered through the writings of the older physicians, that the existence of displacements of the uterus have long been known—not merely the severe external displacements which could not of course have escaped recognition, but those less severe internal displacements only to be recognised by a more or less skilled observer. But the fact remains, undoubtedly, that if the existence of these internal displacements has been known, they were not properly and sufficiently described until comparatively recent times.

It is probable that knowledge in regard to the importance of these displacements would have made greater progress some years ago but for the fact that attention was drawn off from them by the advent of other pathological novelties. In the first place, the 'inflammatory' theory was applied to the subject of uterine diseases, and little else was then thought of than accounting for the various

discomforts and effects which they produce by recourse to this theory. In the next place, the discovery, or rediscovery, of the speculum played an important part in diverting attention from the subject of displacements, or, to speak more exactly, from the subject of distortions and displacements of the uterus. Immediately attention was concentrated on the appearances presented to the eye on inspection of the os and that part of the cervix uteri which could be exposed to view by its means. It is probable that in regard to advancement of the pathology of the uterus the speculum was as much a loss as a gain. The novelty of inspecting the os uteri and the work of classifying the various appearances there met with forthwith occupied almost the sole attention of the gynæcologist. Everything wrong in the feelings of the patient, every discomfort and incapacity, were set down to ulceration or inflammation of the os and adjacent portions of the cervix uteri. The use of the sight was thought all that was necessary, and the position, the shape, and almost the very existence of the body of the uterus was ignored, or at all events disregarded. The excessive and too exclusive use of the speculum after a time excited a reaction, but its influence is still apparent, and the evil effects of an exclusive employment of this method of observation are even now to be witnessed.

The too exclusive attention which the os and cervix uteri had arrogated to themselves, simply because it was so easy to inspect them by the eye aided by the speculum, was after a time shown to be erroneous by the influence of the writings of Scanzoni, who first insisted on the great importance of the body of the uterus, and who directed inquiry to this neglected part of the organ. At the same time the condition of the interior of the canal of the cervix uteri was made the object of attention by Tyler Smith. While, however, 'inflammation' of the various parts of the uterus was occupying the attention of many observers, the displacements of the organ began to attract notice. At the very time when in France the ulceration and inflammation of the os uteri were by many regarded as of first-rate importance, Velpeau, in 1854, expressed himself to the effect that, according to his experience, the majority of women treated for other affections of the uterus have only displacements, and that nine out of ten such patients in whom the affection is diagnosticated as inflammations are affected by displacements.

The late distinguished professor at Edinburgh, Sir J. Y. Simpson, contributed greatly to the increase of knowledge on the subject of



displacements of the uterus. The invention of the uterine sound rendered the diagnosis of these displacements easy, and he was well acquainted with the grave importance of these lesions. His beneficial influence in extending knowledge on this subject would possibly have been greater but for the fact that an instrument he had invented for the treatment of one variety of displacement proved to be dangerous to life in some cases where it was employed.

It is difficult to assign accurately to different workers in the field their proper share in the more modern advances which have been made in regard to the knowledge of displacements. Much has been done in the United States, much, particularly of late, in Germany, but most of all in England. It is strictly accurate to say that England and America share between them the chief merit: in America there has been a wider reception of some of the doctrines originated on this side of the water than in England itself.

In the last edition of this work, published in 1872, I endeavoured to bring more precisely to a focus the conclusions which my own reading and careful observation had induced me to arrive at, and the exposition of the 'Mechanical System of Uterine Pathology' therein contained was the result of this attempt.

The conclusion to which I had arrived in substance amounted to this, that the large majority of the discomforts, pains, and inconveniences complained of by patients and referred to the generative organs, can be traced to, and shown to be dependent upon, the presence of mechanical changes in the uterus, and to the effects of such mechanical changes. The distortions of the uterus, together with the displacements of the organ, more or less associated, are thus made responsible for such pains and discomforts and various other symptoms as make up, when put together, the greater part of the affections known as diseases of the generative organs in women.

The conclusions seemed at first of so sweeping and general a character that I hesitated for some time to believe that such simplicity belonged to a subject which had always appeared so difficult; but as time went on, it was plain that there could be no mistake about it, and the more cases I saw, the more exactly and truly did the principles in question seem to apply themselves naturally to the observed fresh facts.

These conclusions were embodied in the three following propositions:—

‘ 1. Patients suffering from symptoms [of uterine inflammation] (or, more properly, from symptoms referable to the uterus) are almost universally found to be affected with flexion or alteration in the shape of the uterus of easily recognised character, but varying in degree.

‘ 2. The change in the form and shape of the uterus is frequently brought about in consequence of the tissues of the uterus being previously in a state of unusual softness [or what may be often correctly designated as chronic inflammation].

‘ 3. The flexion once produced is not only liable to perpetuate itself, so to speak, but continues to act incessantly as the cause of the chronic inflammation present.’<sup>1</sup>

Since that time nothing has occurred to shake my confidence in the substantial truth of the conclusions just stated; I have had, on the contrary, more reason than ever to be satisfied of their accuracy. The parts enclosed in brackets, and which refer to ‘inflammation’ alone, require to be altered, as I have now a more complete and satisfactory explanation to give of that condition alluded to as ‘softness.’

There has been much misconception in reference to the word ‘mechanical,’ as used in the phrase ‘mechanical system of uterine pathology’—a misconception which it is necessary that I should at once deal with. The word mechanical is here employed to convey an idea as to the origin and nature of the disorder. By it is intended to be conveyed the importance of the share which acquired distortions and alterations of position of the uterus—in a word, mechanical changes—have in the production of uterine suffering. The word mechanical has, however, apparently led some who have criticised the doctrines which I have upheld, to imagine, quite unjustifiably, as I shall by-and-by show, that it has been my intention and desire to inaugurate the universal and indiscriminate employment of instruments and mechanical appliances in the treatment of uterine disease. Nothing can be farther from my object.

The principal argument employed by those who still resist the idea of accepting the mechanical system of uterine pathology is that, admitting the frequency with which alterations of the shape of the uterus occur, these alterations are never of any consequence unless associated with ‘chronic inflammation,’ or, as some prefer to term it, ‘congestion,’ of the uterus. They affirm that the patient suffers not from the flexion, but from certain accompanying con-

<sup>1</sup> See Third Edition of this work, p. 2. Longmans, 1872.

ditions, and go even so far as to say that flexion by itself produces no symptoms.

The whole question will be discussed later on; here, however, it may be mentioned that the point really in dispute is the connection which subsists between the flexion and the other condition (termed variously chronic inflammation, congestion, etc.). There is no dispute as to the importance of this 'other condition.' (In the three propositions above quoted, reference is specially made to it.) It is incumbent on those who controvert the mechanical theory to explain how and why it is that the uterus becomes affected with this 'other condition,' which they consider, and, from one point of view justly so, as so potent in producing suffering. No attempt has been made, so far as I am aware, to give this explanation. The only substantial criticism which has been made is to the effect that patients are relieved by treating the congestion alone, the distortion of the uterus being allowed to take its course. That relief to a certain extent is thus obtained is no doubt true. But this is no answer to the statement, demonstrable by clinical facts unlimited in number, that flexions are indubitably the principal cause of the congestion. Indeed, the congestion may often be at once removed by restoring the uterus to its proper shape. These subjects will of course be fully discussed later on.

The question as to the nature of this 'other condition' so liable to be associated with flexions is of the greatest interest. It is one which has occupied my attention very particularly, and an intelligible account of it can, I think, be now given. In substance the explanation is:—

1. The uterus is very liable to fall into a state of passive congestion when it has become distorted and bent upon itself, though it may become congested from other causes.

2. The uterus is very much more liable to become distorted when its tissues are in a soft, flaccid condition.

3. Softness and flaccidity of the uterus generally indicate malnutrition of the organ.

4. The so-called chronic 'inflammation' is generally chronic congestion, the result of flexion of the uterus.

Attention has been lately attracted in the United States to the effects of *laceration of the cervix uteri during labour* as a fertile source of various discomforts and serious changes in the uterus. Dr. Emmet, it appears, first practised an operation for the relief of this condition in 1862, and he published a paper on the subject in 1874. Dr. Emmet gives a full account of his researches and



numerous operations for its relief in his lately published large treatise. He states that Roser first described an ectropium of the cervix resulting from laceration. Dr. Emmet attaches very great importance to this lesion, and is of opinion that many of the recorded so-called cases of 'ulceration' of the os uteri were really cases of this kind. There is no doubt that the subject is one deserving of careful and close attention. This lesion has been curiously overlooked, and much benefit will accrue from a fuller acquaintance with its nature and treatment. A more particular account of this subject will be found in a later chapter of this work.

## CHAPTER VI.

## ABNORMAL CONDITIONS OF THE TISSUES OF THE UTERUS.

## MALNUTRITION OF THE UTERUS—ABNORMAL SOFTNESS.

MALNUTRITION OF THE UTERUS OR ABNORMAL SOFTNESS.—Its true Pathological Nature—Evidence of Existence of General Malnutrition in such Cases—Effects in Predisposing to, or Causing Distortions of, the Uterus—Symptoms observed—Typical Cases.

UNDER the older nomenclature the terms ‘congestion’ and ‘inflammation of the uterus’ were those mostly employed in describing changes in the uterus of a pathological character. These terms are no longer equally appropriate. ‘Congestion’ of the uterus is a term which can still be employed, but ‘inflammation of the uterus’ cannot be longer considered as an appropriate designation.

There are two conditions which appear to stand out prominently as subjects for particular discussion: (1) A condition of ‘undue softness’ of the uterine tissues. (2) That condition of the tissues for which the term ‘congestion’ seems still appropriate. It seems practicable to describe under these two heads the principal pathological changes in the uterine tissues.

## ABNORMAL SOFTNESS OF THE UTERUS.

One of the results of long-continued observation of diseases of the uterus has been to make me acquainted with the fact that the uterus is clinically frequently found in a condition of abnormal softness. This softness affects the tissues of the uterus universally. It is met with in various degrees of intensity in different cases. It is to be recognised by the touch. On digital examination in the ordinary manner it is found that the tissues of the os and cervix uteri have lost the natural healthy firm feel, and this alteration is usually traceable upwards as far as the finger extends. The softness is sometimes so intense that the outline of the os

uteri is difficult to recognise. The tissues of the cervix when so softened readily allow the finger to sink inwards, having lost the normal firm resistant condition.

It is well known that during pregnancy the tissues of the os uteri become softened, and the softening, which can be readily recognised in women two or three months pregnant, becomes progressively intensified as pregnancy advances.

The softness of the os uteri now under discussion is not dependent on the presence of pregnancy, though physically there may be little to distinguish between the softness due to pregnancy and that observed in other cases. It is my object to point out that extreme degrees of softness may be observed in cases where no pregnancy exists.

*Abnormal softness of the nulliparous uterus.*—Typically, the unusual softness now alluded to is met with in young women who are the subjects of great constitutional weakness or who have been subjected to the influence of long-continued insufficiency of food. It may be encountered also in women who are married, or indeed in women who have had children, but for the purposes of analysis it is convenient to limit the consideration for the moment to softening of the uterus observed in young women, and apart from the influence or consequences of pregnancy.

In the typical uncomplicated cases there is no considerable increase in the bulk of the uterus; the organ is not necessarily enlarged thereby. The soft uterus is very liable to become swollen and therefore increased in size, but it is necessary carefully to separate the two conditions: (1) Simple softness; (2) Softness *plus* congestion.

The softness has long been familiar to me as a fact, and I was for a long time unable to account for it or to give a satisfactory explanation of it. In the valuable work by Scanzoni, 'Die Chronische Metritis,' this author forcibly dilates upon the circumstance that the so-called chronic inflammatory changes in the uterus should be more correctly looked upon as chronic nutrition-disturbances. This remark was the hint to which I am indebted, I believe, for the explanation I have been since led to give of this abnormal softness of the uterus; for an extended observation of cases soon led me to the conclusion that this softness was so frequently associated with deficient nutritional activity of the body generally, that there could be little doubt that it was really an effect of such deficient nutrition; and the conclusion I was thus led to form was to the effect that this abnormal softness of the



uterus observed in young women suffering from uterine symptoms was an evidence of the presence of malnutrition of the uterus.

This abnormal softness appears to be the result of what may be termed 'chronic starvation,' and the essence of it to be malnutrition of the uterus. The age of puberty is one of great growth and development. Much nutritive material, food, is required to build up the frame and to provide for the great increase in bulk and in weight which the transition from the condition of the girl to that of the woman involves. The patients who present this softness and atonic condition of the uterus are almost invariably, according to my experience, to be convicted of non-observance of the laws of supply and demand. They are found to have either taken too little nourishing food, or to have largely and profusely expended their vital forces at this critical age, or to have erred in both particulars. From fourteen to seventeen years of age seems to be the time during which, for the most part, mischief is done in this way, and it is fortunate if errors of this kind do not leave their mark on the individual for the remainder of life.

The above are generalisations on the subject which have taken long to mature, and which are based on very numerous observations, including careful inquiry into the previous history, the mode of bringing up, and the various possible predisposing circumstances, of many patients who have been found to be affected with this nutritional disorder of the uterus.

This softness of the cervix of the uterus is recognisable by the touch. But the tissues of the body of the uterus are not open to investigation in the same way as those of the os and cervix. Yet the clinical evidence adducible shows that the softness in such cases extends to the body of the uterus. This evidence consists in the fact that in these cases the uterus is found to possess a very abnormal degree of pliability. The softness is associated in fact with evidence of this abnormal pliability in the presence of flexions, or it is found by actual experiment that the organ does possess a very undue degree of pliability. This has a most important relation to the etiology of flexions, as will be pointed out later on.

In the worst cases that have come under my notice, the general health was almost invariably in a very weakened state. The patient had for a lengthened period eaten very little. The condition of the muscles generally, the absence of fat, the great languor, general debility, want of appetite, and other not less significant

symptoms, showed that these patients were suffering from chronic starvation and that the tissues of the uterus were thereby weakened in common with those of the other organs of the body.

The weakening influences of an insufficient dietary show themselves in different ways in different cases. The resulting atrophy and weakness usually, however, effect more decidedly one organ in particular—in one case the lungs, in another the brain, and sometimes, as in the cases above described, the uterus.

The imperfectly nourished uterus is, I believe, always unduly soft. The softness is probably in great part due to actual deficiency of the muscular element in the tissues, but it may be partly due to defective nerve action, to impairment of the vaso-motor apparatus. There is a condition of the uterus to which it may be desirable to call attention in this place as bearing on the question as to the cause of the softness. When the uterus is gravid the tissues of the os and cervix during the early months of pregnancy possess a certain firmness and resistance, but if abortion occurs, as the process of evacuation of the contents of the uterus goes on, the lips of the os are observed to become very soft and lax to the touch. In fact the process of dilatation of the cervix—a part of the process of abortion—appears to be connected with a loosening and softening of the tissues of the cervix. There is of course no analogy between the two conditions: there is only a resemblance so far at least as the physical properties appreciable to the touch are concerned.

I am gratified to find that so experienced an observer as Dr. T. Gaillard Thomas indorses very completely the statements I have made as to the effect of chronic starvation in producing a soft condition of the uterus. In the fifth edition of his work (1880), Dr. Thomas says, 'The form of the uterus—that is, its muscular strength and power of resistance—is decidedly affected by want of sufficient nutritional material, and flexions are a frequent consequence; as Dr. Graily Hewitt has ably pointed out (p. 51). . . . It is no exaggeration to maintain that the American woman, except in our cities, is at least half-starved' (p. 51).

As a matter of clinical experience, undue softness of the uterus is very frequently found *associated with true congestion* of the tissues of the uterus, but it is a quite distinct condition from the latter. It is very frequently also found associated with flexions of the uterus; one very remarkable class of cases are those in which the uterus readily, in consequence of its great softness, changes from one form of flexion to another. These latter are rare cases

and will be found described in a later chapter as 'alternating flexions.'

Undue softness of the uterus would perhaps hardly be considered a disease in the ordinary sense of the word. And yet clinical experience would indicate that it is a powerful factor in the production of disease. As such it deserves careful consideration and adequate recognition.

The importance of the condition lies chiefly in this, that the uterus being thereby more pliable than usual is apt to become altered in regard to its shape, and this alteration of shape may become permanent after the condition of undue softness has disappeared.

*Abnormal softness following pregnancy.*—The foregoing remarks apply for the most part to the nulliparous uterus. Pregnancy is a condition which may leave behind it a degree of softness of a peculiar character. After the uterus has expelled its contents, it remains softer than usual for a variable time. During the process of involution it is probable that its tissues are softer than at other times. When the process of involution is a protracted one, the uterus may be found larger and unduly soft some time after the end of the pregnancy. Clinically this is a circumstance which is now and then observed. And a complex condition, made up partly of imperfection of contraction of the uterus and partly of undue congestion of the organ, is liable to be witnessed under such circumstances. Thus the uterus may be found to be unduly large and unduly soft also. The facts observed in cases of this kind seem to leave very little doubt that we have before us a nutritional weakness as in the former class of cases. Here the disintegration of the uterus is slow; its reparation is slow also, and apparently from the same cause, viz. a deficient activity of the nutrition processes in the uterine tissues. This deficiency of action can be traced very frequently indeed to insufficiency of diet and to want of proper food.

The symptoms observable in cases of undue softness of the uterus may next be considered. These symptoms present an interesting field for study. One of the most constant of these symptoms is presence of pain during locomotion, or a pain produced by movement of the body. There may be simply discomfort produced by movement. This symptom is one which I have particularly observed in its most intense degree when the softness is associated, as it very frequently is, with flexion of the uterus. This uterine dyskinesia appears in these cases to depend upon the unnatural flexibility of the organ; a slight motion of the body gives



rise to a temporary flexion of the uterus, and this produces the pain. Another symptom very frequently present in cases of undue softness of the uterus is *sickness* or *nausea*. This symptom is one productive of great misery to the patient, and by its continuance is liable to lead to very great weakening of the system. It exists in all degrees. It is worst in cases where there is flexion also. The very worst cases I have seen were cases where the uterus was exceedingly soft and the flexion had been overlooked because it was of a temporary character. Sickness does not necessarily prove the presence of softness of the uterus, because sickness may be produced by flexion without concomitant softness. The most insidious form of this symptom is that where the nausea is slight in degree but very constantly present. There is a constant disinclination for food, though there may be no actual vomiting. The patient falls into the habit consequently of taking less food than is required: chronic starvation is the result.

At the meeting of the British Medical Association held at Manchester, 1877, I read a paper on 'abnormal softness of the uterus as a factor in the etiology of uterine distortions, and as a cause of impairment of locomotion.'<sup>1</sup> In that paper I gave particulars of twelve typical cases (nulliparous), and I here subjoin a few of them as illustrative of the history of such cases and of the nature and course of the symptoms observed.

*Case I.*—A governess, aged 20, had, when she first consulted me, been ill for over two years. The difficulty in walking, which had existed for longer than this, had finally become so great that she was almost paraplegic. There was great general feebleness. The amount of food taken daily was exceedingly small, on account of the nausea the idea of food produced. She had, after struggling to continue her avocation as a teacher, been obliged to give up entirely. Menstruation was, I believe (though my notes are deficient on this point) painful and scanty in amount. Great prostration invariably followed any effort. There were great emaciation, sleeplessness, and much mental depression. The uterus was soft to the touch, entirely wanting in that firmness the healthy uterus possesses; it was remarkably anteflexed. The treatment adopted was, firstly, very careful administration of soup, beef-tea, and small quantities of meat at very frequent intervals; secondly, maintenance absolutely in the recumbent position; and, thirdly, reposition of the uterus by the aid of the sound and continuous wearing of a rather small-sized cradle-pessary. In a month, she removed to the country. Five months later, her condition was very

markedly improved for the better. The pessary was continued, and the 'rest' treatment, together with the careful feeding, persevered in. Iron in the shape of phosphate was ordered from the first. This patient was able to resume her occupation to a great degree when I next heard of her some months later, and has been steadily and certainly gaining ground, her ultimate complete cure being apparently certain. In this case, the initial element was, in my opinion, imperfect nutrition, whereby the tissues of the uterus were rendered soft, pliable, and atonic. The next important element was over-exertion, whereby the uterus was pushed downwards and its shape altered. The ante-flexion became more and more decided; the nausea prevented adequate consumption of food; and a third most important element was added, namely, starvation in a chronic form.

*Case II.*—The patient, a lady aged 19, had been very ill for two years when I first saw her. A constant liability to vomiting was the principal symptom, this tendency being most marked on lying down. Four years ago she had an attack of fever, and has never been well since. She is extremely feeble, and any exertion is distressing. Formerly, she could walk three miles a day easily. The sickness set in rather suddenly; it is now present two or three days in the week, nausea or vomiting occurring the whole day long, but most intensely—and this is a curious feature in the case—on lying down in bed at night. Her appetite is pretty good. The uterus is found to be very sensitive to the touch and softer than usual; the body of the organ is enlarged. There did not appear at this time to be much anteversion present. The further observation of the case showed that the uterus was very unnaturally mobile, and that the organ was subject entirely to the action of gravity, the body of the uterus moving to an abnormal degree forwards or backwards, according to the position in which the patient lay. It was found most difficult to deal with this element in the case; for, while it was evident that steadying the uterus produced an amelioration in the symptoms, this steadying of the organ was most difficult to maintain, owing to the great laxity and size of the vaginal canal. The uterus was too irritable to allow of a stem-pessary. The treatment was discontinued after a time, removal to the country for the benefit of a change of air being necessary; and the further history is not known to me. This patient was treated at the All Saints Institution, and Dr. John Williams also saw the patient several times. The attack of fever was the primary element in this case; the uterus was weakened thereby, in common with the body generally. The tonicity of the uterus was destroyed, and the nausea and vomiting were occasioned by the incessant bending of the uterus backwards and forwards which the motions of the body produced.

*Case III.*—The subject of this case was an American, about 20 years of age, who had been, to use her own expression, 'ill all her life.' For some years, at all events, her health had been such

that she could not enter into society or visit, or walk more than a few yards without extreme inconvenience. The first occasion of the illness appears to have been dancing during a catamenial period. Menstruation is now very irregular, the interval being sometimes as much as three months. Nausea is very commonly present. There is a very troublesome leucorrhœa. Of late, menstruation has become painful. There is a high degree of 'nervousness,' and this has much increased of late. There is a constant pain in the back, and frequently pain in the groins. The uterus is congested, softened, anteverted, and so low down in the pelvis that the fundus of the organ is felt through the vaginal roof almost immediately on introducing the finger. The sound does not enter easily. The treatment consisted in rest; use of the sound, by which the uterus was gradually elevated; and constant wearing of a cradle-pessary. After two months' treatment, the patient left, and was found, at the end of six months, so much better that she was considered to be practically cured. The use of the pessary was continued in all about eight months. Locomotion was easy and natural, and the result extremely satisfactory. In this case, over-exertion in dancing at the menstrual period gave rise to anteversion and descent of the uterus. The symptoms were produced by this unnatural position of the organ; and the congestion, also a very important element in the case, appeared to be kept up by this position. Very little was done except to replace the uterus and to maintain it in its place; but the symptoms, so long continued and intractable, were by these measures subdued, and the natural activity of body restored.

*Case IV.*—The patient was single, aged 23. The illness, in its present form, has lasted six months. Menstruation was irregular from the first, the interval being occasionally six months. Latterly, the periods have been regular; but since four years ago, at which time she injured herself by a leap, the periods have been painful. The patient is now unable to sit upright, and she can only walk a few minutes without suffering. She had previously been active. There is a constant pain in the back. The uterus was found to be soft, congested, and anteverted; introduction of sound painful. The treatment at first consisted in dorsal decubency and occasional use of the sound. Later on, a cradle-pessary was used, and the patient went to the country. Complete restoration to health was the result, the power of walking gradually returning. In this case, the general health was not much impaired. The case was a well-marked instance of displacement of the uterus occurring suddenly and rendered chronic. The morbid condition had latterly become aggravated, and the power of locomotion destroyed.

*Case V.*—In this case, the patient, who had formerly been able to walk for as much as two hours at a time, was single, aged 27. Catamenia formerly very irregular. Walking is productive of great uneasiness and pain; a bearing-down sensation always follows. There is frequent nausea on sitting up the first thing in the morning. It is evident that



the chief illness dates from a period of three years ago, when the patient injured herself in drawing a cork from a bottle. This gave great pain at the time, and pain continued to be felt in the side for some weeks afterwards. There is leucorrhœa, occurring in the form of occasional gushes of fluid, evidently from the cavity of the uterus. The uterus is half an inch too long, anteverted ; but the sound passes in easily, and reduction is easy. The organ is soft and pliable. The general health is bad ; there is great feebleness. The general treatment ordered was restorative ; rest was enjoined, and the uterus supported anteriorly by means of the cradle-pessary. In satisfactorily effecting this latter object, great difficulty was experienced, owing to the abnormal length of the uterus. A certain degree of improvement for a time followed such treatment as I was able to carry out, only seeing the patient once at intervals of a few months. The general nutrition of the body had received a shock, which it was, however, difficult to withstand ; and the patient has not yet recovered from the extremely feeble condition to which she had been reduced. This case is a most important one, as exemplifying the occasional severe form which uterine disease may assume. The general health had become so much affected that little or no restorative power was at command, while the peculiar mechanical difficulties of the case also conspired to interfere with the efficiency of the treatment. [The final result of this case was restoration of locomotion and to fairly perfect general health.]

The subject of the treatment will be discussed in connection with the treatment of congestion of the uterus.

## CHAPTER VII.

## CONGESTION OF THE UTERUS AND CONGESTIVE HYPERTROPHY.

PECULIARITIES OF THE CIRCULATION IN THE UTERUS.—Effect of Compression at the Centre of the Uterus in Producing Congestion at its Two Extremities—General Congestion: Causes—Acute and Chronic Varieties—Relation of Acute form to Gooch's 'Irritable Uterus'—Effect of Flexions in Causing Acute Congestion—Chronic Congestion: Causes and Effects—Increase in Size of Uterus—Association of Chronic Congestion with Flexions.

CONGESTION of the uterus implies a fulness and distension of the blood-vessels of the organ, which may be slight in degree or considerable. The congestion may be partial, affecting some portions of the organ more than others, or it may affect the whole organ. The congestion may be temporary and evanescent, or it may be continuous and persistent.

Congestion of the uterus may also be simple or complicated. When it has assumed a chronic form it is almost always complicated, the tissues of the uterus becoming altered in other ways also.

In discussing this important question it is necessary to direct attention to the peculiarities of the circulation of the uterus; these peculiarities having a direct bearing on the nature and etiology of uterine congestion.

The vessels of the uterus enter for the most part along the sides of the organ. The *arteries* are derived from the uterine artery, which passes upwards from below, along the sides of the uterus, giving off very numerous branches which pass inwards to the uterus, and the greater number of them about the situation of the internal os uteri. These branches of the uterine artery are mainly concerned in giving arterial blood to the uterus, but not entirely so, for there is a free inosculation at the junction of the Fallopian tube and the fundus uteri, between the extremity of the uterine artery and that branch of the spermatic artery which supplies the Fallopian tube itself. Were it not for this inosculation, which is effected, however, through a vessel small in calibre, the cutting off of the circulation in the uterine arteries would deprive the

body of the uterus of blood.<sup>1</sup> The *veins* issue from the sides of the uterus, forming large plexuses around the organ. It follows from these considerations that compression of the uterus about its middle, such as would be produced for instance by applying a ligature round it at that situation, would be, according to the degree of tightness of the ligature, to obstruct the circulation in the part of the uterus near the middle, viz. the body of the uterus.

FIG. 18.



It is evident also that if the constricting ligature were widened so as to compress also the vessels a little above and a little below the middle of the organ, there would arise an obstruction to the circulation, both in the body and in the cervix of the uterus. The uterus is liable to a form of compression which acts more or less exactly as an artificial compress might be made to act when it is bent upon itself and thrown into a state of flexion. It is true that the vessels are outside of the uterus, and it may be conceded that the bending of the uterus itself may leave the main trunks still patent as ever, but the moment they enter the tissues of the organ they inevitably fall under the effect of compression. A disturbance in the circulation in the

body of the uterus thus results—a disturbance which the small anastomotic branch connecting the spermatic and uterine arteries cannot adequately rectify.

Dr. Meadows (Harveian Lectures 1881) appears to have arrived at a different conclusion to that expressed above. The foregoing remarks, written ten years ago, still seem to me to represent the truth. Clinical observation has many times convinced me of its accuracy. The veins going from the fundus uteri to the ovarian bulb appear to be entirely insufficient to relieve congestion of the body of the uterus produced by impediment to the circulation existing at the centre of the uterus. Indeed if the outlet towards the ovaries were sufficient congestion of the body of the uterus

<sup>1</sup> The arteries of the uterus are well delineated in Plate 5 of Dr. Savage's work, 2nd ed.



would not occur. That it does occur shows the insufficiency of the ovarian outlet as a means of emptying the veins of the body of the uterus.

The accompanying drawing (fig. 18, from Dr. A. Farre) represents a section of the uterus, and exhibits the thickness of the uterine walls.

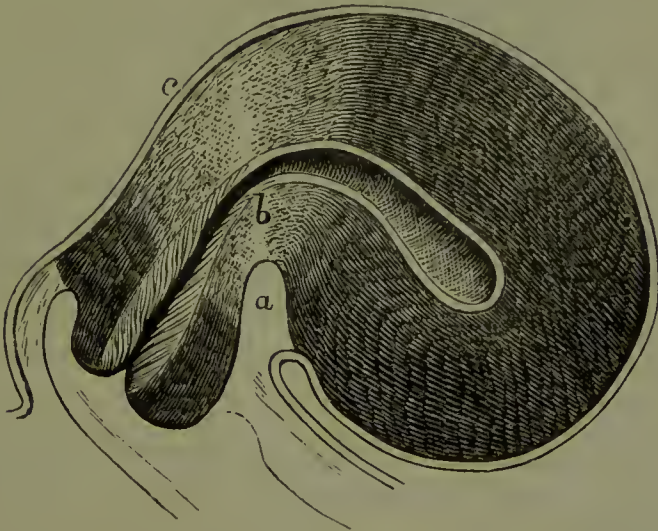
A second figure (fig. 19, also from Dr. Farre) exhibits a *transverse* section of the uterus at the situation of the internal os, and the section of the uterine vessels as they lie at the sides of the uterus is very well shown.

With these two figures before us it is easy to understand what happens when the uterus comes to be acutely bent. The next drawing (fig. 20) represents the condition present in ante-flexion of the uterus, and the effects of the flexion in compressing the uterine tissues at the concave side of the bend. The walls of the uterus are also drawn thicker, and the dark shading is intended to show the congestion which results in the whole of the

FIG. 19.



FIG. 20.



upper part of the uterus from the compression of the vessels, and also at the os uteri and cervix below the part where the compression is exercised.

*General congestion of the uterus* will be first described.

Here the whole organ is too full of blood, and as one result it becomes larger and heavier than usual. It seems certain that a condition which may be termed a normal general congestion exists

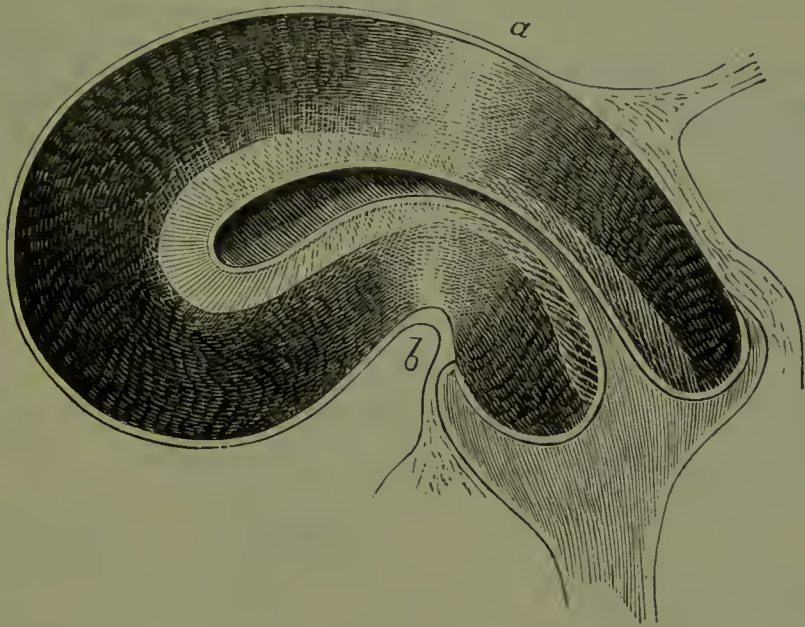
at the time of menstruation, and that, as Rouget first pointed out, there is as a result a quasi-erection of the whole organ at this period. It would be proper to use the term 'menstrual congestion' to designate this condition, which simply implies that at the time of menstruation there is a certain amount of congestion and fulness of the vessels of the uterus. In health this degree of congestion is probably slight, but doubtless in disease it is capable of easily extending itself, so to speak, and thus the congestion may be extensive both in degree and in duration.

General congestion of the uterus may arise from general impairment of the circulation, especially such as produces interference with the abdominal viscera. One of the commonest varieties of it, for instance, is that met with in European women living in India. General diseases, of whatever kind, capable of lowering the force of the heart's action may lead to general congestion of the uterus: a loaded condition of the bowels; mechanical pressure of abdominal tumours; excessive sexual indulgence,—are some of the other more important determining causes.

General congestion of the uterus may be *acute* or *chronic*. In the acute form it is rare unless associated with an actual mechanical disturbance in the organ itself, as, for instance, in cases of acute retroflexion; but there is one class of cases in which probably what may be termed acute general congestion of the uterus occurs, viz. those cases in which the patient, while menstruating, or just before, or just after the period, receives a violent chill from sitting in a cold bath, bathing in the sea, standing on a wet floor, &c., and there results a severe and general congestion of the whole uterus. It is true that in some of these cases of sudden chill or shock the mischief produced thereby may not be always precisely the one here indicated. Acute general congestion of the uterus, however, produced in this way, is a very serious affair, and though not perhaps always immediately productive of grave results it may leave behind it a permanent and troublesome disease. It does not appear that such acute attacks are common except at or near menstrual periods.

The most important class of cases of *acute congestion* of the uterus are those in which the uterus is distorted and its shape altered, and there arises in connection with this an acute congestion of the uterus which affects, according to circumstances, some parts of the organ more than others. It is met with in association with retroflexion of the uterus in its most severe form, but antelexion is sometimes conjoined with very acute congestion.

The class of cases now alluded to are those which were formerly described by Dr. Gooch under the term 'irritable uterus.' It is now some years since I published a paper on this subject, the object of which was to point out what I considered to be the true pathology of these cases. The subject will have to be alluded to in the chapter on Flexions. Here it may be sufficient to say that acute flexions are liable to be attended with very acute congestion of the uterus. The organ becomes swollen, hard, excessively tender to the touch—so much so that the patient cannot bear even the idea

FIG. 21.<sup>1</sup>

of an examination being made. The body of the uterus, which can be felt by the finger either in front or behind the cervix, according to the kind of flexion present, is felt to be most abnormally sensitive. The os uteri and cervix participate more or less in the congestion present, and they may be found swollen and enlarged also. The whole uterus is of course in a state of the greatest irritation under such circumstances. The irritation persists along with the congestion. The congestion may be very protracted if the condition is unrelieved by treatment, but it may rapidly pass away if judiciously managed. The phenomena observed under these circumstances convey the most valuable information in regard to the potency of flexions in causing congestion of the uterus, and in maintaining it. The contrast offered by the former complete want of success in remedying these troublesome cases,

<sup>1</sup> Fig. 21 represents acute 'traumatic' congestion in a case of retroflexion.



and the present rapidly successful treatment is the best proof that could be offered of the accuracy of the above pathology. The congestion appears to be acute in proportion to the degree of bending which the uterus undergoes. Here we have the application to make of our knowledge of the peculiarity of the circulation in the uterus spoken of at p. 76. The intense swelling of the body of the uterus produced by the compression of the flexion is sometimes so severe as to justify the use of the term 'strangulation of the uterus,' which is one under which I called attention to it some years ago.<sup>1</sup> It is quite analogous to the congestion of the hand and forearm which are produced when the fillet is tied round the arm for the operation of venesection. The blood is detained in the vessels, particularly the capillaries and veins, and congestion thus arises. And it is the fact that the removal of the compression, which can be effected more or less quickly by straightening the uterus, has the effect of relieving the congestion in a manner strikingly speedy and satisfactory. The fact that flexions are thus capable of determining and causing severe congestion of the uterus is a radical one in regard to its importance: it is one which has been noticed by Klob: Thomas fully indorses it in his edition of 1873. It will be found to have a wide application in gynæcological practice. Probably the best term to use to designate congestion of the uterus produced in this way is 'traumatic congestion.' Dr. John Williams,<sup>2</sup> in an interesting paper on 'The Relation between Congestion of the Uterus and Flexion of the Organ,' points out that when the uterus is retroflexed, the fundus is liable to be caught and constricted by the utero-sacral ligaments, and that under such circumstances there would arise a further mechanical cause of congestion.

Acute congestion of the uterus may produce a very enormous increase in its size. Thus in some cases of flexion I have found the uterus almost as large as the fist, and it may attain this size in a comparatively short space of time. The following is a case of this kind which came under my notice quite recently:—

Miss —, æt. 19, has always been weak and delicate. Of late she has been incapable of walking, and during the last few weeks has suffered from severe pains in the hypogastric regions, with difficulty and frequency of micturition. On examination it was found that there was apparently a large tumour, smooth and hard, occupying the pelvis, pushing down the vaginal roof in front of the uterus, of which it seemed a part.

<sup>1</sup> Brit. Med. Assoc. Meeting at Newcastle-on-Tyne.

<sup>2</sup> *Obstet. Trans.* vol. xvi. p. 203.

The size of this was so great that I thought it was really a tumour, and a more complete examination under anæsthesia was evidently necessary. Meanwhile the patient was ordered to lie down, and keep quite quiet. After the lapse of a week the further examination was made. It was then found that the supposed tumour had almost disappeared; it had resolved itself into a moderately large anteflexed uterus. The rest and recumbent position had produced this effect. Any one making an examination on the first occasion would have been entirely unprepared to find in a few days such a change in the size of the uterus as undoubtedly occurred in this case.

FIG. 22.<sup>1</sup>

*Chronic congestion* of the uterus must next be considered.

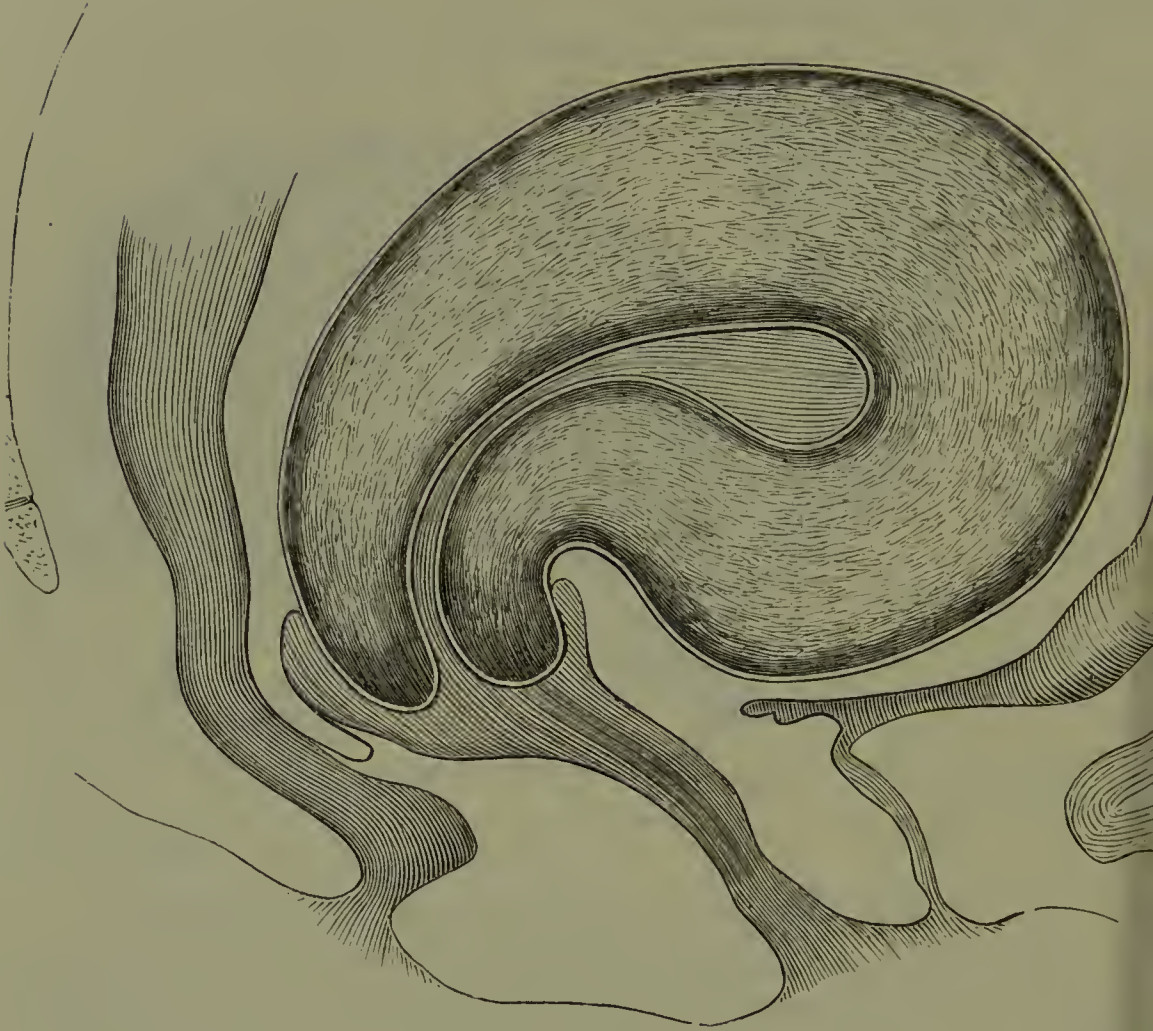
In its first stage chronic congestion is little more than a slight engorgement of the uterine vessels, with increase in its weight. There is at first nothing beyond increase in the size and fulness of these vessels, without any particular molecular change in the tissues of the uterus.

When present in a slight degree, general congestion of the uterus at first may produce a certain degree of softness of the tissues of the uterus, the organ becoming enlarged and looser than usual in texture. In other cases, on the other hand, it becomes firmer

<sup>1</sup> Fig. 22 shows congestion and enlargement, with anteversion, in a patient, æt. 18, affected for nearly one year with severe vomiting.



than ordinary. The difference seems to be explainable by attention to the condition of the uterus which existed before the congestion set in. Thus, in cases of undue softness arising from malnutrition of the uterus (see previous chapter) nothing is more common than to find that congestion is added on to or affects the already soft uterus. A large, flabby, unresisting condition of the

FIG. 23.<sup>1</sup>

uterine tissues will then result. But in the case of a uterus in a state of health previously, the addition of congestion will produce a different effect: the tissues of the organ will then by continual congestion be made harder and firmer than they were before. There are certainly these two types of cases observable in practice. Another precedent or concomitant condition which may have to be taken into account is defective involution of the uterus after

<sup>1</sup> Fig. 23 shows chronic congestive hypertrophy, with anteflexion of the uterus of many years standing.



delivery or after an abortion. Here the organ is large and heavy, and the condition is one of continuous general congestion, because the vessels are large and the uterine solid constituents of undue bulk. Defective involution of the uterus is thus one of the causes of chronic general congestion of the organ, and there are good reasons for the belief that the sluggish manner in which the uterus involutes itself is due to general impairment of the nutritive processes in the body generally, and in the uterus in particular.

#### CONGESTIVE HYPERTROPHY.

A common effect of general chronic congestion of the uterus is an *increase of the solid constituents of the uterus*. At first there is simply undue fulness of the blood-vessels, but after a time there is addition to the solid parts. The addition consists in increased growth. The result is, that the organ as a whole is larger, heavier, and thicker than before. The tissues of the uterus consist of unstriped muscular fibres and fibre cells, and an intervening cellular tissue. These, together with the vessels, nerves, and lymphatics, compose the uterus. In chronic general congestion the connective tissue appears to undergo after a time decided increase in quantity. The increase in bulk is in all probability due in part also to the further growth of the muscular element, but the general impression is that the cellular tissue is most affected. The uterus becomes after a time harder than the normal uterus. It is thus both larger and harder than before attacked by the chronic congestion. And when a section of it is made, the tissues are seen to be decidedly hard and to resist the knife. This condition of the uterus has been described as 'chronic inflammation,' 'chronic metritis,' &c. Professor Thomas of New York terms it 'areolar hyperplasia.' Klob describes it as 'continual hyperæmia.' The term which appears to me most correctly to define the condition in question is 'congestive hypertrophy.'

The increase in bulk and the consequent hardness resulting in the production of the condition now described as congestive hypertrophy, is a further stage of general congestion of the uterus.

Chronic congestive hypertrophy of the uterus is a very common affection. It is not, however, very common unassociated with alteration of shape of the organ. It is liable to be *partial*, in-

volving one part of the uterus more than another. A common variety of it is the uterus distorted by a flexion of long standing, the fundus in a state of congestive hypertrophy, the lips of the os uteri swollen and also in a state of congestive hypertrophy, but generally one lip more decidedly swollen than the other. Such a uterus is liable to take on at any time a *further* congestive action—there occur, in fact, repeated attacks of congestion, as it is termed, the repetition of which attacks has the effect of increasing gradually the size of the organ. The uterus becomes moulded and swells in the direction of least resistance, and becomes literally hardened in its evil ways. This is a common type.

A really general congestive hypertrophy of the uterus, the uterus still retaining its normal shape, is not common; but such a condition sometimes results from defective involution of the uterus.

Chronic congestive hypertrophy of the uterus is not easy to distinguish from defective involution of the uterus after delivery. Microscopically, however, there would probably be a difference, the muscular element predominating in the latter case, and the connective tissue element in the former.

The hypertrophic condition of the uterus, as already remarked, is very frequently noted in cases of flexion or distortion of the uterus; and by some authorities (Dr. Thomas of New York, *e.g.*) the hypertrophy is looked upon as the cause of the displacement. Undoubtedly this explanation applies to that variety of hypertrophy, the result of defective involution after delivery, but it is probably not generally the case in other instances.

The size which the uterus attains in cases of chronic congestive hypertrophy is sometimes very great. Thus, I have met with cases of ante flexion in which the uterus was so wide from side to side that it seemed almost to fill the anterior half of the pelvis, having the size of a cricket-ball, or even larger. Fig. 23 represents a case of long-standing general hypertrophy of the uterus, associated with ante flexion. Hypertrophy, to an equal extent, is not seldom witnessed with retro flexion.

Chronic hypertrophy often affects the lips of the cervix uteri; the os uteri is then surrounded with tissues sometimes enormously thickened. This hypertrophy of the vaginal portion of the cervix may be associated with flexion of the uterus or may be the result of a former flexion. It may also be produced by laceration of the cervix. It seems to me very probable that many of those cases

in which the os uteri presents rounded projecting lips of considerable size have their origin in such laceration. At all events it is certain that such rounded hypertrophy of the lips of the os uteri is observed in cases of lacerated cervix. The congestive hypertrophy in these cases appears to depend on the interference with the circulation in the tissues produced by the laceration, for I have seen it rapidly disappear when the laceration has been repaired and the normal circulation restored.



## CHAPTER VIII.

SUB-INVOLUTION OF THE UTERUS. ATROPHY AND  
HYPERTROPHY OF THE UTERUS.

SUB-INVOLUTION OF THE UTERUS—Nature and Treatment.

ATROPHY OF THE UTERUS; the result of Sexual Involution—Premature Senile

Atrophy or ‘Super-involution’ of the Uterus—Mechanical Atrophy.

HYPERTROPHY OF THE UTERUS—Result often of Defective Involution after Delivery—Hypertrophy, with Elongation of the Cervix.

## SUB-INVOLUTION OF THE UTERUS—NATURE AND TREATMENT.

THE condition of the uterus described under the term sub-involution of the uterus has been already incidentally alluded to. But it is convenient to give it a distinct and separate consideration, inasmuch as it is a factor of considerable importance in many cases of uterine diseases.

Sub-involution of the uterus may be observed after parturition at full term or following an abortion. The uterus does not return to its proper size, but remains larger than it should be. That is to say, that process of diminution in bulk which is natural under such circumstances is delayed beyond the proper time. The uterus may be found, for instance, as large at the end of a month after parturition as it should be at the end of a week from the time of labour. The persistence of a bulky condition of the uterus under these circumstances means either that the metamorphosis of the large uterine muscular fibres into fatty material, and absorption thereof, is delayed, or it means that there is a delay in the metamorphosis *together with* congestion of the uterus. It is probable when a few weeks have elapsed and the uterine bulk is still considerable, that the case is one of arrested metamorphosis *plus* considerable congestion, rather than arrested metamorphosis alone.

At first the uterus, in a state of sub-involution, may be soft and spongy to the touch, but later on it is not so, and the condition is one rather of hardness than softness. After a time, in fact, the condition becomes merged into one of congestive hypertrophy, or,

as it would be termed by Dr. Thomas, 'areolar hyperplasia' of the uterus.

The microscopic condition of the uterus will be found to vary according to the time which has elapsed since the parturition or abortion; for if the examination be made early muscular fibres in excess will be found, whereas later on there will be a superabundance of cellular connective tissue material.

Displacements, especially flexions of the uterus, are causes of sub-involution of the uterus. Thus, I saw a case of acute displacement of the uterus backwards, occurring very soon after labour, where the uterine fundus must have retained its abnormal size, in this retroverted condition, for many days after the displacement occurred. The sub-involution in this case was thus caused by the displacement; probably in consequence of the arrest of the circulation in the uterus thereby produced. I have seen several other cases of somewhat similar character. It is not, however, necessary that the uterus should be displaced in order that sub-involution may occur, for cases are encountered where there has been no such dislocation. Of the other causes of sub-involution of the uterus probably *mal-nutrition* and *weakness* are most common. The weakness may be of long standing or it may be the result of excessive loss of blood at the time of the labour or of the miscarriage. The feebleness of the patient is the cause of the want of vigour in the uterus, the contractions of which do not occur in due force. Hence protraction of the process of involution.

Sub-involution readily passes into a condition of chronic congestive hypertrophy; the shape of the uterus, the thickness of its walls, may remain the same, but it then becomes harder and firmer. But in some cases this change into a condition of hardness does not occur, the uterus remaining abnormally soft, spongy, and flaccid for a considerable time. Cases in which this latter occurrence is observed are those in which the nutritive force is at a very low ebb; reparation is slow, and a passive congestion results.

Sub-involution is observed sometimes in conjunction with inflammatory conditions of the parts around the uterus. Thus, in pelvic cellulitis, following labour or abortion, the uterus remains large and heavy; and although in some cases the bulk of the uterus may be partly due to effusion of lymph in its tissues, yet the greater part of it is evidently simply sub-involution. The disturbance going on in the immediate vicinity of the uterus, compression and swelling of lymphatics, &c. arrest the process of involution in these cases of peri-uterine cellutitic inflammation.

*Treatment.*—There are two principal indications. 1. To remove any impediment which may exist to the easy and free circulation of the uterus. 2. To quicken and invigorate the nutritive process in the body generally. There are also subsidiary measures to be taken.

1. If there be a displacement it must be rectified. If the bowels are in a chronically loaded state they must be relieved by daily gentle aperients or injections. The horizontal position may be required.

2. The food must be plentiful and of a highly nutritious character. In short, a liberal diet is necessary, and when the appetite is bad food must be given frequently and in small quantities at a time.

3. *Subsidiary Measures.*—Warm injections or the douche of warm water once or twice daily. Ergot, either alone in small doses once or twice a day, or together with iron, frequently proves very useful. Warm sponge baths, warm sea-water baths, friction of the skin, fresh air, and such general hygienic measures as may be specially required, should not be forgotten. If the case be seen some weeks after labour or miscarriage, the general treatment required is much the same as for chronic congestion of the uterus. Bromine and iodine are valuable medicines in the later phases of the disorder. Quinine and iron are of great service in many cases. It is probable that electricity would prove serviceable in some instances.

#### ATROPHY OF THE UTERUS.

Atrophy of the uterus, in the true sense of the word, implies not a congenital defect as regards size, but an *acquired* smallness.

Atrophy of the uterus occurs at the period of sexual involution; the organ ceases then to exercise the ordinary function, menstruation and the capability of impregnation coming to an end. The walls of the uterus become under these circumstances thin, and the whole organ smaller than before. These changes are attended with the further consequence that the uterus is less vascular and less sensitive than before. The organ has ceased to play its part, and its condition functionally very much resembles that present antecedently to the arrival of puberty. Morbid processes affecting the tissues of the uterus are not unfrequently arrested by the occurrence of this, which may be termed its natural atrophy. But it appears that the uterus may undergo this senile change at an unnaturally early age, thus constituting a condition which Chiari<sup>1</sup>

<sup>1</sup> *Klinik der Geburtsh.* 1855, p. 371.



described as 'premature senile atrophy.' Sir J. Y. Simpson<sup>1</sup> ascribed this to 'super-involution' after delivery—a questionable theory.

Premature atrophy of the uterus might be expected to be found in women who have prematurely ceased to menstruate, but its occurrence in association with still persisting ovarian activity is, as would be expected, extremely rare.

The uterus affected with atrophy of the character alluded to is universally small, the cervix participates in the change, the vaginal portion becomes shorter, and the os uteri smaller. The tissues of the organ become somewhat harder.

Atrophy of the uterus of another kind may be produced by the operation of external influences. Thus, when the organ is pressed upon by tumours in the neighbourhood, the walls may become very thin. I have found the organ excessively small from this reason in some cases of ovarian tumour and of fibroid tumour.

Local atrophy occurs in cases of flexions of the uterus, the walls becoming in many cases very much diminished in thickness at the part which is the seat of the flexion. (See chapters on 'Flexions.')

Another kind of atrophy is that accompanied with excessive dilatation of the uterine cavity, such as now and then occurs from fluid or gaseous distension of the organ. The uterine walls may be found in such cases excessively thin. The form of atrophy here alluded to has been described as 'excentric atrophy' of the uterus.

#### HYPERTROPHY OF THE UTERUS.

Congestive hypertrophy has already been described (see p. 75). Hypertrophy may, however, exist without congestion.

Like many other organs of the body, the uterus is liable to variations in size. This variation is, however—in individuals in a state of health—limited. During the catamenial period, the organ becomes enlarged, but this enlargement is normally only temporary, and a general and persistent addition to its bulk only occurs under abnormal circumstances. The very considerable growth which the uterus undergoes during the period of gestation is of course an exception to this statement.

The simplest form of hypertrophy of the uterus is that witnessed in cases where the uterus is, and has been, influenced by pregnancy or by the presence of a tumour or tumours within its walls. This

<sup>1</sup> 'Clinical Lecture on Amenorrhœa.' *Med. Times and Gaz.* 1861.

subject has been more fully considered elsewhere (p. 83) in connection with the subject of chronic congestion of the uterus, with which condition this simple hypertrophy is generally associated. Here the enlargement affects the body and the cervix of the uterus pretty equally.

The most common, and indeed the most marked form of hypertrophy of the uterus is witnessed in women who have been pregnant, and just described (p. 86) under the term 'Sub-involution.' When this 'involution' does not occur regularly and promptly, the

FIG. 24.<sup>1</sup>

organ is liable to become affected with hypertrophy of a *persistent* character. Even in these cases, however, the degree of hypertrophy witnessed, if there be no other cause in operation, is not very great. In hypertrophy of the uterus due simply to 'defective involution' after deliveries, abortions, &c., the increased length of the organ does not, I believe, ever exceed one inch. (It is necessary to observe that this does not apply to any measurement taken within the first two or three weeks after the labour or mis-

<sup>1</sup> Fig. 24 represents a case of general hypertrophy of the uterus, and of the cervix uteri, in a patient affected with menorrhagia. Amputation of the vaginal portion of the cervix was performed in this case.

carriage.) One inch increased length usually implies, however, considerable addition to the general bulk of the organ, and entails various inconveniences,, which have been already particularly described. Hypertrophy, the result of chronic congestion and defective involution, one or both, is most palpably evident in the cervical region, as this can be easily reached and inspected, but it is rarely limited to this portion.

Hypertrophy of the uterus is especially liable to occur in association with growth of fibroid tumours within the walls of the organ. A fibroid tumour of the uterus, growing in the middle of the thickness of the wall, not unfrequently produces great hypertrophy

FIG. 25.<sup>1</sup>

of the uterus, for the uterus may expand and grow not merely around the tumour, but in every other part also. The bulk of the uterus may, under such circumstances, equal that of a child's head, but the greater part of the bulk would then be made up of the tumour. In cases of fibrous polypus of the uterus, the organ grows sometimes to a very large size, but in such cases the uterine walls have less thickness. Hypertrophy of the uterus to a slighter degree is witnessed when fibroid tumours grow from its outer surface. Again, it is not rare to meet with enormous fibroid tumours growing from the external surface of a uterus, itself even smaller than usual.

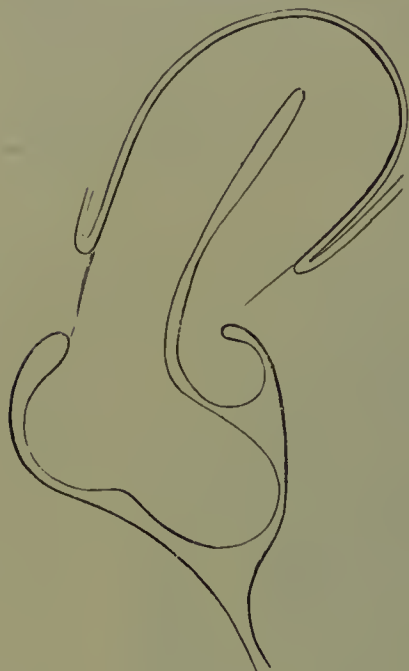
<sup>1</sup> Fig. 25 (from Farre) represents longitudinal hypertrophy of the cervix, of a marked character. Other illustrations will be found in the Chapter on 'Prolapsus.'



Partial hypertrophy of the vaginal portion is sometimes observed.

*Hypertrophy with elongation.*—The uterus not unfrequently undergoes, in consequence of pressure, or in consequence of traction in a particular direction, an elongation to which the term hypertrophy has not always been very correctly applied. This

FIG. 26.<sup>1</sup>



elongation more particularly affects the cervical portion of the organ, not simply that part which projects into the vagina, but the cervix properly so called. Hypertrophic elongation of the cervix constitutes one of the forms of prolapsus of the uterus (see 'Prolapsus'), but it is also sometimes witnessed when an ovarian tumour pushes the body of the uterus upwards, and thus elongates the cervix. In such cases the walls of the canal do not usually grow, and the effect of the traction is thus to render them actually thinner. The cervix of the uterus may, under such circumstances, become three, four, or five inches in length. The lower portion of the cervix—i.e. the vaginal

portion—sometimes, however, undergoes a true hypertrophy, the result of which is that a conical or snout-like substance of considerable size is then found occupying the vagina, nay, even projecting beyond the ostium vaginae. A more limited hypertrophy is depicted in fig. 26.

<sup>1</sup> Fig. 26 represents hypertrophy of the posterior lip of the os, of non malignant character.

## CHAPTER IX.

### TREATMENT OF THE VARIOUS TEXTURAL DISORDERS OF THE UTERUS—MAL-NUTRITION OF THE UTERUS, CONGESTION, CONGESTIVE HYPERTROPHY, ETC.

General Preventive Treatment—Dietary necessary—Importance of deficient Dietary as a Cause of Uterine Disease—Defects Qualitative and Quantitative—‘Chronic Starvation,’ a Real Disease—Its Importance—Method of dealing with it—Preventive Treatment as regards Menstruation—Preventive Treatment in Child-bed—Congestion of the Uterus and Congestive Hypertrophy—General Treatment—By Altering Position and Shape of Uterus—By Lecching, Scarifications, &c.—Use of Hot-water Injections—Baths and Watering-Places—Astringent and Caustic Applications to the Os Uteri—Internal Remedies.

THE first and most important question to be dealt with is the *preventive treatment*.

Observation has led me to the conclusion that it is rare to meet with congestion of the uterus together with its various complications, in cases where the uterus was previously in a state of health. An attempt has been made to indicate this ‘previous state’ of the uterus under the head of ‘mal-nutrition’ (undue softness) of the uterus. That subject here finds its practical application.

#### TREATMENT OF MAL-NUTRITION OF THE UTERUS.

Whatever tends to maintain the body generally in a state of health tends also to maintain the integrity of the uterus. General treatment good for the body at large is good for a part of it also.

It will not be credited by anyone who has not taken the trouble to inquire carefully into the previous habits and history of patients suffering from the ordinary diseases of the uterus, how common it is in these cases to meet with evidence of the strongest character of a long-continued insufficiency of dietary, this insufficiency being in operation up to the time of the patient coming under observation, or having been in operation for a very considerable period at

a former time. It is thus quite easy to track the process of commencing ill-health to its source, and the facts elicited by cross-examinations will almost invariably enable the inquirer to say not only that the disease began at such and such a time, but to state why it was so.

It does not appear that what may be termed elementary nutritional deficiency has been assigned, as yet, its due place in the etiology of uterine diseases. I am more and more convinced that the part it plays is a most important one.

The dietary must then be the first object of attention. In a growing girl the dietary should be a generous one. Two mistakes are liable to be made in the matter of the dietary: one relates to the *quality* of the food given; the other to the *quantity*.

1. *As regards the quality of the food.*—It is not uncommon to meet with cases where for one reason or another the food given is defective in quality during what may be termed the developmental period of growth of the uterus, viz. between the ages of twelve and sixteen or seventeen. This defect is more likely to consist, so far as my experience shows, in an insufficiency of meat food. The ordinary bread and butter which constitutes the principal food in many boarding-schools is not adapted for the production of healthy tissues. Meat is the article of diet which I have generally found to have been deficient in the dietary of young women who have presented evidences of mal-nutrition of the uterus later on. It may be that, if the bread given were more pure, the absence of a liberal allowance of meat would be less felt, but I now only give results of observations in cases when there certainly was deficiency of meat.

Motives of economy sometimes operate to the exclusion of a liberal meat dietary, but in the middle and higher classes of society these motives are non-operative, and it is not rare to meet with cases of young women brought up in what is termed a luxurious manner, who have never been permitted during the growing age to have more than one meal containing meat in the day. This practice appears to me, judging from numerous cases whose details could be mentioned, to have inflicted in those instances the greatest injury on the constitution, and to have predisposed to the grave evils for the relief of which advice was sought years later.

2. *The Quantity.*—It is well known and generally admitted that robust health is associated with the presence of a good appetite. The presence of a good appetite ensures the taking of sufficient food—when, at least, it can be



procured. The appetite is, however, too often taken as the guide in the opposite case, where it is deficient, absent, or capricious, and it is too generally supposed that if there is no appetite for food there is no necessity for it. This mistake—for a grievous one it certainly is—is common amongst the public at large, but it does not appear that it is sufficiently recognised as a mistake even in professional circles. The human machine is kept going by a process of repair. There is an incessant waste, and there must be an incessant repair to make good the waste, or evil necessarily follows. It is true that the quantity of food taken is often reduced for a considerable time without the individual apparently suffering materially—the human frame is so full of resources that it resists for a long time the deteriorating influences of a lessened dietary; the waste affects some non-vital part and life goes on. But there is a limit to this endurance. When the diminished dietary has been in operation for a long time—some months for instance—it is almost certain that in case of an individual of only average stamina mischief will result. Of necessity, the actual quantity of food required *per diem* is larger at the time the growth is most rapid, and consequently deficiency in quantity is most felt at this period. In the case of boys and young men there is not generally any reluctance to indulge an appetite which should be a large one, but in the case of girls it is not uncommon to find that there is a sort of feeling that the possession of a good appetite, or at all events the innocent gratification of it, is a thing to be deprecated. And it is the fact that many young women do themselves mischief by deliberately taking less than is required to maintain the body in a state of healthy growth.

It has been already stated that the appetite is often misleading. This appears to be a point which requires to be emphasized. If the appetite is wanting or defective, there is probably something wrong, and steps should be taken to ascertain what it is which has destroyed or lessened the appetite. There are many possible causes for a want of appetite—defective hygienic conditions of various kinds, actual disease of some part of the body, &c. But what should be recognised is that neither patient nor doctor should sit down and simply allow things to go on in this unsatisfactory manner. Such neglect will lead eventually to disaster. The want of appetite is perhaps the first in a chain of symptoms which become graver and more serious as the body becomes month after month debilitated by the slow starvation which it causes.

There is much reason for the belief that the most important of the diseases which prove fatal to young persons—the tubercular affections—have their origin in deficient feeding. It is, at all events, certain that this is one of the most important of the factors concerned in the production of these diseases. If we take the case of a young woman growing up under such defective alimentary conditions as have been above described, it is uncertain what precise effect the chronic starvation of which she is the subject will have upon her—or, in other words, what organ of the body will first feel the attack. It may be the lungs or it may be the uterus. In the one case the pulmonary consumption occurs, in the other softening and further disease of the uterus. My own experience has brought very numerous instances of the latter result under my notice, and from some well-marked cases of the other kind which I have seen I have been led to attribute the first step downwards to the same cause in each class of cases, viz. defective alimentation. It is rational to conclude that deficient alimentation will have a tendency to affect all parts of the body; but it is in accordance with experience that it affects some organs more than others, various accidental circumstances influencing the body—habits, temperament, surroundings of various kinds, determining which particular organ shall feel the impetus of the blow, in the first instance.

Judging from experience it seems to me very desirable that ‘chronic starvation’ should be admitted into the list of recognised diseases. When alimentation is always deficient the condition of the body is one of chronic starvation,<sup>1</sup> and this is the preliminary—in the majority of cases perhaps a necessary preliminary—to the advent of the various serious disorders recognised in medical classifications of disease.

There are, of course, hygienic laws to be complied with. Fresh air, sufficient clothing, exercise well adjusted to the capabilities and requirements of the body—all these are very necessary, but the maintenance of the proper degree of nutritional activity is of the first importance. Change of air, change of scene, visits to watering-places, baths, &c., change of occupation—these are often beneficial; but why? Because they restore the lost appetite; and if they fail in this, comparatively little benefit is derived.

Having treated many cases of commencing uterine disease, characterised as above described by softening and weakness of the

<sup>1</sup> See Annual Address to the Harveian Society, *On Chronic Starvation*. *Lancet*, Jan. 1879.

uterus, I have seen the great benefits of careful and assiduous feeding in the class of cases requiring it, and have found this method of treatment so universally successful that it can with the greatest confidence be recommended. The principles which apply in cases when the malady has to be cured are, of course, available in the preventive treatment.

The foregoing remarks indicate the importance which I have attributed to food and feeding in the treatment of chronic uterine maladies. In a paper read before the Obstetrical Society of London in 1880, I stated that at the All Saints' Institution during seven years I had treated sixty-seven cases, the majority of which were cases of uterine chronic disease associated with great general weakness and a condition of 'chronic starvation.' 'The first principle of the treatment was *rest*.' The next principle of treatment was to improve the general nutrition of the body. Most of the cases afforded marked instances of chronic starvation, sometimes of several years' standing.<sup>1</sup>

I give the above quotation to show the lines which my practice of late years has followed.

In connection with this subject it is next to be stated that Dr. Weir Mitchell<sup>2</sup> of Philadelphia has for some years carried out a method of treatment in cases somewhat resembling those treated by me in All Saints' Institution, consisting in rest, *massage*, electricity, and food, all very systematically and persistently used, and with results the success of which I can quite understand from what I have observed in my own cases. Dr. Playfair has recently<sup>3</sup> made the profession in this country better acquainted with Dr. Weir Mitchell's very practical and successful method, and has published cases showing the great success which has followed his adoption of Dr. Mitchell's treatment.

Dr. Playfair heads his paper on the subject 'Nerve Prostration and Hysteria connected with Uterine Disease.' The cases are those in which the patient has become a confirmed invalid, and in which there is or has been uterine mischief: 'the pain, the backache, the leucorrhœa, the difficulty in progression, the disordered menstruation, which are attendants on the local troubles, have ended in producing a state of general disturbance in which all the bodily functions become implicated. The nervous system is profoundly

<sup>1</sup> See Report of Sixty-seven Cases of Uterine Distortion, etc. *Obst. Trans.* vol. xxii.

<sup>2</sup> *Fat and Blood: and how to make them.* London edition, Lippincott, 1878.

<sup>3</sup> *Lancet*, 1881.



affected, the blood impoverished, and the general nutrition at the lowest ebb.' There is wasting of the fatty tissues, the appetite is gone, there is dyspepsia, and all exercise is abandoned. The patient becomes emotional and hysterical, and all efforts at cure have proved unavailing.

An outline of Dr. Weir Mitchell's treatment is as follows:—

1. Absolute repose and seclusion from home or other accustomed influence for from six to eight weeks, the patient being only allowed to sit up gradually.

2. Employment of massage of all the muscles twice a day for half an hour at a time at first, and later on for an hour and a half.

3. Electricity by the interrupted current twice daily, the sponges being so employed as to work all the muscles successively.

4. Diet. At first milk is given every three hours—in small quantities at first, later increased. Then more ordinary food of all kinds is given, the quantity being gradually increased, and soon very large quantities are capable of being taken, the massage and electricity, as it is considered, enabling the patient to take food in gradually increasing quantities until, as in cases related by Dr. Playfair, a very enormous amount is taken daily.

The system of treatment as above described has the effect of quickly improving the strength, in restoring the lost adipose tissue, and enabling the patient to move about, and restoring, in fact, the lost vitality and locomotive power.

The massage and electricity are two elements in the treatment of which I have had but limited experience. I have employed baths and friction of the skin as a regular part of the treatment in cases of great nutritional impoverishment, in addition to the rest and feeding, and have thus obtained extremely good results; but it seems to be proved by Dr. Mitchell's cases that the addition of systematic massage and electricity are extremely important additional means, and there is no doubt that they are likely to help materially in promoting healthy nutritional changes.

It is to be remarked that the incapacity for locomotion observed in the class of cases described by Dr. Mitchell is, to my mind, evidence that the condition of the uterus in his cases was, as a rule, that which I have described as abnormal softness of the uterus. The so-called 'hysterical' element in these cases is one which will be discussed more properly in the chapter on the 'Neuroses of the Uterus.'

## TREATMENT OF CONGESTION OF THE UTERUS.

Congestion is frequently associated with other conditions from which it is impossible to dissociate them in practice. Flexions of the uterus, softening of the organ, or hardening and a certain degree of hypertrophy are the principal other conditions likely to be met with.

The congestion has to be treated with due regard to the proper relation subsisting between it and the other conditions possibly, and generally, present.

According to my experience, the cases are few in which real good can be effected without a careful attention to the general treatment, by the restoration of the nutritional activity to its proper healthy state as an integral part of the treatment. There is frequently present a condition of great general debility out of which the patient has often to be slowly dragged, as it were, by persevering efforts in this direction. A patient who has been persistently underfed for three or four years will not be capable of restoration to strength in a short time; and when the uterine congestion is associated with such long-standing debility, much time may have to be spent in feeding the patient before the local ailment is satisfactorily relieved.

The method of feeding a patient so reduced, which I have long practised, is to give food very often, of such a kind that it can be easily digested, and in very small quantities at a time, sometimes every two hours. Liquid food, soups, milk, eggs beaten up, &c., are best at first; solid food, also in very small quantities, to be given later on. The digestive power is then improved and the appetite often returns with unexpected rapidity. The addition of massage and electricity, according to Dr. Weir Mitchell's plan (see p. 98), promises to be very serviceable in expediting this nutritional improvement. The important principle of endeavouring to make up for past deficiencies by careful diet cannot be neglected if success is to attend our efforts to cure the patient.

My experience has taught me much as to the power of food in curing disease, particularly of course in the cases coming before me which have been mostly cases of uterine diseases. And in fact I may say that I have been thus taught some very important lessons in regard to the pathology of uterine diseases. The effects of careful dieting in chronic cases of uterine disease I have found to be so marked that it became evident the uterine disease was largely

due to the deficiencies which I had been induced to set about correcting, and the condition described as softness of the uterus became from that time intelligible to me.

The efficacy of general treatment in cases of uterine disease—the ‘constitutional’ treatment as it has been termed—has been insisted on by the late Dr. Rigby, Dr. Henry G. Wright and other gynaecologists. So far as I have been able to determine, the ‘constitutional’ treatment is beneficial in direct proportion as it helps to more vigorously nourish the body and every part of it, including the uterus. Whatever conduces to this end is likely to be of service. Food is in fact the great constitutional remedy.

#### PREVENTIVE TREATMENT DURING MENSTRUATION.

The promotion of regularity as regards quantity and time of appearance of menstruation is very important in order to prevent congestion of the uterus. Care during menstruation is incumbent on all women, and even those in apparently good health cannot disregard themselves in this respect without danger. It is highly important that the natural congestion, as it may be termed, of menstruation should not be protracted. If there is the slightest tendency to disease of the uterus rest should be taken at the period, and violent exercise avoided, especially in conjunction with outward application of cold. Sitting in wet clothes or wet shoes, standing on damp or wet floors, these are all sources of danger. In the work of Mary Putnam Jacobi<sup>1</sup> will be found the results of extensive inquiries as to the necessity for rest from mental and other work during the period of menstruation. The general conclusion is that work cannot be advantageously continued during the menstrual period in the majority of cases. Such is the necessary conclusion so far as those particular observations go; whether it is the case that in all countries the disqualification for work during menstruation is so wide-spread as it appears to be in the United States is another question. On the whole, my own personal observations would lead me to the inference that the disqualification is hardly so frequently observed in England as it appears to be in America.

<sup>1</sup> *The Question of Rest for Women during Menstruation.* By Mary Putnam Jacobi. New York, 1877.



## PREVENTIVE TREATMENT IN CHILD-BED.

Congestion of the uterus has so frequently its starting-point in a 'bad getting-up,' as it is termed, after parturition, that some special remarks are required on the subject of the preventive treatment.

Above all it is necessary to secure healthy and rapid involution of the uterus, whereby its bulk is reduced, the nutritive changes hastened, and the restoration to its normal size and bulk effected. The patient should maintain the horizontal posture for some days, and should not be allowed to perform movements calculated to strain the abdominal muscles. And as soon as possible after the lochia have ceased, the use of the hip-bath, or of the vaginal douche (see chapter on 'Leucorrhœa'), should be commenced. Great care should be taken to prevent constipation of the bowels. The diet should be very carefully supervised. In women who have been in a good state of health previously it is simply necessary to give ordinary food and in ordinary quantities, not omitting to do so even on the day following the delivery.

In those patients who are weakly food must be given very often ; and liquid nourishment, as soups, eggs, beef-tea, etc., are to be given frequently and between the ordinary meals. Night feeding is very necessary in weakly women during child-bed, great exhaustion often setting in about four or five in the morning : exercise should be taken in moderation, at first ; walking should not be commenced until two or three weeks have elapsed. It is usually advisable to apply a moderate support to the abdomen by means of an elastic bandage. Very great benefit will be derived from attending to these simple rules, and it is very certain that a neglect of them has frequently the result of originating a troublesome and painful disease. It is important, as a further means of securing perfect contraction of the uterus after delivery, to induce the patient to suckle her child, although this course cannot from the debility of the patient always be recommended. In women who are liable to abortions, the majority of whom are affected with uterine flexion, it is necessary to take double precautions ; we frequently find that the uterus becomes diseased from the fact that the pregnancies rapidly succeed each other, the uterus not having recovered its natural size when it becomes again occupied by an ovum. In such cases, unless care be exercised, the liability to abortion is perpetuated, and the local

evil intensified. We must insist on the necessity for allowing the uterus a period of rest; this is equally necessary after an abortion, and after an ordinary labour; in many cases, the habit of abortion is only to be broken through by enforcing a separation of the husband and wife for some months, during which time efforts are to be made to reduce the uterus to its normal size and to its natural condition. There can be no doubt that by judiciously watching over and supervising the function of parturition, and regulating the conduct of the patient afterwards, we can effect much good in cases where the uterus is liable to fall into a state of chronic enlargement and congestion.

The congestion which is apt to occur after labour is of a passive kind; the large size of the uterus enables it to hold much blood. It is also softer than usual, and the great danger of this undue softness and weight of the organ is that there thus arises a strong predisposition to severe displacement of the organ. The order of events is frequently: 1. Defective involution; 2. Congestion; 3. Displacement, including flexion; 4. Congestion created and kept up by the flexion; 5. Hindrance to further perfection of the involution by the other already-mentioned conditions.

#### GENERAL TREATMENT OF CONGESTION AND CONGESTIVE HYPERTROPHY OF THE UTERUS.

In other chapters (see pp. 75 *et seq.*) the question of the mechanical production of congestion has been discussed. It is undoubtedly the fact that distortions of the uterus are in great part the cause of congestion of the uterus as we meet with it in practice. When the congestion is a mechanical congestion it can be quickly and materially relieved by removing the cause—that is to say, by taking steps to restore the uterus to its normal shape and position, thus allowing the blood in the uterine vessels more freely to circulate. The uterus is in many cases extremely amenable to mechanical influences acting from without. Thus in a case of ante flexion the placing of the patient on the back will help to remove congestion associated with the dislocation, whereas in cases of congestion due to retro flexion the reverse treatment will be necessary. So, again, the knee and elbow position, by raising the fundus uteri, often so assists the uterine circulation that congestion is thereby relieved. These points will be more fully enlarged upon in the chapter on the ‘Treatment of Flexions.’ This method

of treating congestion of the uterus is of primary importance, and it can frequently be carried out without resort to instruments at all. The effects producible are sometimes extremely rapid in their development, and the principle of the treatment is so simple that it is readily to be understood and applied in practice.

The practice of leeching the uterus in order to remove congestion is in its way a mechanical method of treatment. It is one which was very much practised a few years ago, and it is still largely employed by practitioners who are not practically aware of the intimate connection as cause and effect subsisting between flexions and chronic congestion of the uterus, and who have not had opportunities for observing the extreme rapidity with which the congestion as a rule subsides when the uterus is so treated that its circulation is no longer obstructed. The withdrawal of blood from the congested os uteri by leeches removes for the moment the congestion of that part (though it has less effect on the congestion of the body of the uterus), and when the process is repeated for some weeks two or three times a week, has, no doubt, an appreciable effect of a beneficial character. But if the same result can be obtained by other and more simple means, and without taking away blood, and therewith strength, the simpler method will in the end come to be preferred. On the view which supposes the congestion to be a sort of disease of itself, the leeching would undoubtedly commend itself as rational; but if the congestion be a mere mechanical result of some other condition of the uterus, obviously the rational course to pursue will be to deal with that other condition, in the first place at all events. Leeches will, however, be found useful in cases where the uterus has become hypertrophied as well as congested.

Certain manipulations necessary in applying leeches must be mentioned. Unpleasant or inconvenient results are apt to occur when the leeches attach themselves either within the os uteri, or on the walls of the vagina. A moderate-sized speculum is to be first introduced, so that its upper extremity touches the vaginal portion of the cervix at every point, and a small piece of lint is next inserted in the os itself. The leeches (three or four in number) are then pushed up the tube, and allowed to fix themselves on the exposed portion of the cervix. It may be necessary to use an injection of tepid water previously to applying the leeches, and to remove the discharge covering the surface of the cervix by means of a piece of lint. When the leech attaches itself to the interior of the os, or to the vaginal wall, the patient



usually experiences, especially in the former case, sharp pain. To detach the leech under such circumstances, an injection of salt and water is to be used. It must not be forgotten that the bleeding from leech bites on the os uteri is sometimes very profuse, it may be even alarming.

*Scarifications* or *punctures* of the congested uterine cervix, either externally on the surface of the vaginal portion, or within the canal, are of great use in some instances, especially in reducing the size in cases of hypertrophy of the part. The remedy is applicable to the same class of cases as those requiring leeches. A number of slight scarifications are better than two or three deeper ones. In performing scarification of the cervical canal, a small knife of peculiar shape and construction is necessary.

*Use of Hot Water Injections.*—Of late years the efficacy of hot water injections—temperature  $100^{\circ}$  to  $110^{\circ}$ —has been frequently observed in the treatment of uterine congestion. Dr. Emmet, of New York, largely employed it, and I have for the last two or three years rather extensively recommended it. On the whole there seem to be good reasons for avoidance of cold water for injections or affusions to the uterus. There was formerly a notion, which I myself shared, that cold water was a good application in cases of congestion of the uterus. I no longer think so. The hot water high temperature douche may be employed twice a day; the quantity used may be one or two pints or more.

In cases of congestive hypertrophy of the cervix uteri, when the os presents nodular masses instead of the natural-shaped orifice, the repeated application of the hot water as above mentioned is a valuable assistance in promoting absorption, the application being made daily for some weeks.

*Baths and Watering-Places.*—In obstinate cases, the greatest benefit is sometimes derived from the internal and external use of mineral waters of various kinds; the effects produced being dependent partly on the change of scene and occupation, partly on the increased activity of the skin induced by the use of the baths, and partly on some special action of the waters used. The choice of a watering-place is a matter of some moment. In cases complicated with dyspepsia and with defective action of the abdominal circulation, Vichy or Hombourg may be recommended. Where the action of the abdominal viscera is sluggish, and where there is great constipation, the baths of Carlsbad or Marienbad are very useful, especially in the case of patients who have been in the habit of indulging too much in the pleasures of the table. Many others might be mentioned,

equally efficacious in improving the condition of the abdominal circulation and the state of the digestive organs, such as the waters of Püllna, Seidlitz, Purton, &c., which contain sulphate of magnesia and soda, and are therefore of an aperient character. In cases where we desire to act chiefly on the skin, and to effect a derivation to the surface, the 'indifferent' thermal waters offer advantages; the waters of Wildbad, Schlangenbad, Gastein, Clifton, Buxton, &c., deserve mention in this respect. Warm sea-water baths act in like manner; they are very efficacious, and have the additional advantage of being pretty accessible. There are cases in which the uterus and pelvic organs generally appear to be in an atonic relaxed state, and for the relief of this class of patients chalybeates are found most serviceable. The waters of Schwalbach, Pyrmont, Spa, Driburg, Kissingen, Franzensbad, and Fachingen, are the best adapted for patients suffering from the above symptoms, associated as they usually are with anæmia, pallidity of the surface, tendency to headaches, &c. The iodo-bromated waters of Kreuznach, Hall, Durkheim, and Krankenheil, are specially to be recommended in cases of the more chronic kind, especially when the uterus is the seat of indurations, however caused. The Woodhall Spa in Lancashire enjoys a reputation for qualities analogous to those of Kreuznach. For neuralgic or rheumatic cases, Wiesbaden, Baden-Baden, Ems, and Bath enjoy deserved repute. In cases where it is considered desirable to administer iron in small quantities, together with an aperient, waters such as those of Kissingen or Selters are the best. The baths of Driburg have been found peculiarly efficacious, taken during pregnancy, in cases where there is a tendency to disease of the foetus; the waters in question are chalybeate, but contain also lime in solution.<sup>1</sup>

*Astringent and Caustic Applications to the Os Uteri.*—As subsidiary measures these local applications are frequently of great service.

Solutions of alum or of tannic acid, or the latter in form of oak bark decoction, are the astringents most commonly employed in the form of an injection used once or twice daily. Many other astringents have been also employed with advantage. Caustic applications have been very frequently employed in cases where the malady supposed to be present was ulceration of the os uteri, and in another class of cases also where the lips of the os are hypertrophied

<sup>1</sup> For further information on the subject of baths, see Dr. Althaus' work, *The Spas of Europe*. London: Trübner.

(congestive hypertrophy). The caustic agents used have been of various kinds, from the solid nitrate of silver, comparatively mild in its action, to the acid nitrate of mercury or caustic potash. The stronger caustics have been rather frequently employed to melt down and actually destroy the nodular projecting lips of the os uteri as well as to produce a healing of the so-called ulcers. The use of severe caustics in this manner had a powerful effect, and in not a few cases had the effect of not only removing the hypertrophy but of producing a closure of the aperture of the os uteri, with consequent grave inconveniences. When the lips of the os are fissured deeply, and present nodular projections, the best treatment consists in first of all reducing the bulk by persevering with daily injections of hot water, and afterwards repairing the lacerations by a plastic operation (see chapter on 'Lacerations of the Cervix Uteri').

The waters of Kreuznach are specially serviceable in the concentrated form in cases of chronic congestive hypertrophy of the uterus and cervix, their use being continued for some few weeks at a time.

The milder caustic agents are of service in accelerating the removal of hypertrophies of the lips of the os uteri. The solid nitrate of silver and the iodine liniment, or the liquor (which latter is the weaker) of the British Pharmacopœia, are the agents I prefer. Strong solution of bromine is also a useful agent for the purpose. These agents are applied on cotton wool by means of the speculum: the os and cervix being well exposed, the secretions are to be removed and the surface well dried by means of a piece of lint or cotton wool, and the caustic then applied.

The only cases in which stronger agents seem admissible are those in which there is a small growth which requires actual removal—for instance, those in which the interior of the os presents those excrescences or developments of the mucous membrane known as *mucous polypi*; those cases also in which the mucous follicles around the os become swelled out and distended, presenting the little round enlargements known as the *Nabothian bodies*. In the application of the stronger caustics, we have an expeditious mode of dealing with the pathological conditions in question. The rare cases in which true *chancre* of the os or cervix uteri is present come under the same category.

Whenever the strong caustics are used, very great care is necessary to prevent the tissues adjoining to the cervix uteri from being injured. These tissues must be guarded in a suitable manner during the operation, and precautions used to prevent the caustic



applied to the surface of the cervix from coming into contact with the opposed surfaces of the vagina, when the operation is over, and the speculum withdrawn.

The *actual cautery* has been a favourite remedy, especially in France, in the treatment of chronic induration or inflammation of the vaginal portion of the cervix uteri. The application is made through a horn speculum, specially constructed for the purpose, and is repeated at intervals of a few days, each portion of the indurated surface being thus successively covered with eschars.

*Internal Remedies.*—On the supposition that proper measures are being taken to remove the cause of the congestion and improve the uterine circulation, we have to consider what other internal treatment is required. Ergot given at intervals in small doses, or by the subcutaneous method is one of the internal remedies most appropriate for reducing chronic uterine congestion. Probably next in order stands bromine, or mineral waters containing it. The Kreuznach water is one of these, and its use continued over many weeks has a considerable effect in most instances. Bromide of potassium may be given as a medicine, ten or fifteen grains twice a day. It may also be used as an injection for the vagina. The Kreuznach water (in the more or less concentrated form) can be very usefully thus employed. Its topical action on the uterus is undoubtedly good, especially in cases where there are hypertrophies of the os uteri present.

A mild mercurial course, following the suggestion of Dr. Oldham, has been often employed in order to reduce the size of the organ in cases of chronic congestive hypertrophy. The remedy is undoubtedly efficacious in some instances. But it requires care, for, if the patient be very weakly, it may do more harm than good.

*Relief of Pain.*—There are many cases of congestion of the uterus in which immediate treatment of a palliative character is required for the relief of pain.

The remedies, opiates, fomentations, &c. which may be advantageously employed under such circumstances will be described in the chapter on ‘Treatment of Flexions’ (see p. 189).

#### TREATMENT OF HYPERTROPHY OF THE UTERUS.

The remarks above made as to the treatment of congestive hypertrophy of the uterus are applicable to the treatment of

hypertrophy without congestion. When the uterus is altered in shape it is of primary importance to rectify the shape. Iodide of iron is a medicine which appears very useful in chronic cases in reducing the size of the uterus. Baths, injections, as above described, require to be perseveringly employed. Even in long-standing cases the bulk of the uterus can be reduced very materially if care be taken to assist the uterine circulation, and to maintain the strength of the patient.

## CHAPTER X.

### ABNORMAL CONDITIONS OF THE LINING OF THE UTERUS.

General Employment of term Endometritis—Explanation of these Cases—Cause most frequently Retention in Uterine Cavity of Irritating Discharges, Retention being due to Uterine Distortion—Importance of Drainage of Uterine Cavity—Fungous Condition of the Lining of the Body of the Uterus shown to be really Congestive Hypertrophy of the Mucous Membrane.

THE terms endometritis, endocervicitis, have been employed to designate the condition of the lining membrane of the interior of the body of the uterus and of the cervix, respectively met with in cases of so-called inflammation of the uterus. And these affections (endometritis and endocervicitis) constitute for several gynæcologists of repute substantial and important and independent diseases. The presence of pain, coupled with presence of a copious discharge from the uterine cavity, is taken to imply that the affection present is mainly this endometritis, and, further, that it is a primary affection. But there are good grounds for disputing the accuracy of this view.

Endometritis does probably occur as a separate and distinct ailment. Thus, one of the effects of a severe chill is to set up a morbid condition of the lining of the uterus, which becomes irritated in common with the tissues of the uterus generally. The lining of the uterus may also be irritated and inflamed by various applications from without. And there is no doubt also that traumatic influences acting on the lining of the uterus—laceration by the point of the sound, for instance—may set up dangerous irritation. In the latter case, however, we have a real pyæmic process introduced. Apart from traumatic influences, it may be said that endometritis is, as a distinct disease, not by any means common.

The importance which 'endometritis' holds in the estimation of some uterine pathologists necessitates a discussion in this place of the whole question. Those who, rejecting as unphilosophical and untrue, when tested clinically, the theory of all uterine mala-



dies being situated at the cervix, and who have contended for the body of the uterus having a little more attention paid to it, have been themselves divided into two camps. Some have held that the tissues of the *walls of the body of the uterus* are affected with inflammation; others consider the *lining of the body of the uterus* to be the principal seat of the disorder.

I have all along expressed my agreement with those who, like Scanzoni, contend for the importance of the affections of the body of the uterus.

The absence of a free outlet for the uterine secretions is a fertile source of irritation of the uterine lining. Thus the flexions of the uterus are causes of such irritation, leading, as they do so frequently, to a partial and valvular closure of the internal os uteri. The fluid collects in and distends the body of the uterus, it is retained and becomes irritating.

The presence of excessive discharge from the interior of the body of the uterus is in so many cases obviously connected with an obstruction at the internal os uteri leading to retention of the secretion within the uterus, that it is impossible to escape the conclusion that it is this obstruction which is responsible for the excessive secretions. Under the head of 'Flexions' of the uterus this matter will require further development; but here I would state that the facts and the results of that special treatment for endometritis which is in favour with some practitioners equally fall in with this view of the case.

Accepting, therefore, the assertion—which is undeniable—that in certain cases the lining of the body of the uterus is in a disordered state, evidenced by profuse secretions from it, by purulent or offensive discharges therefrom; and, putting on one side cases of cancer, cases (very rare) of tuberculosis of the uterus, cases of gonorrhœa and syphilis, I continue to hold the opinion, expressed in the last edition of this work, that this disordered state of the lining of the body of the uterus is generally the result of retention of natural secretions and the irritation proceeding therefrom.

Anyone who has treated cases of flexion of the uterus is familiar with the fact that the uterine body is frequently enlarged and distended by accumulation of fluid within it. This fluid escapes from time to time, but until the flexion is relieved the accumulation is apt to occur. When menstruation occurs under these circumstances the menstrual products are also apt to be detained in utero. The 'period' is protracted and may be very painful. The retained products irritate the interior of the uterus, become broken

up, mixed with further secreted watery fluid, and finally escape in gushes as a puriform fluid. Dysmenorrhœa, menorrhagia, leucorrhœa, are all symptoms which may be mixed up with such retention of fluid in utero, and therefore it is impossible to disassociate their consideration from the question of possible endometritis, and the possibly altered condition of the lining of the uterus must of course be considered in conjunction with these symptoms and their connection pointed out. In this place we are concerned with the question as to the substantiality of endometritis as a distinct disease. It really appears to be, in the majority of cases, but an effect, an accident—so to speak—of other concomitant disorders of the uterus: important, no doubt, as an effect, but still an effect. Constituting indisputably a source of discomfort and giving rise to various symptoms, but not a primary condition in the proper sense of the word.

The key to the proper understanding of most of the cases of so-called endometritis is the due recognition of *the importance of drainage of the uterine cavity*. Provision must be made for escape of the secretions, and the conditions capable of producing retention of these products must be understood. When the uterus has a shape resembling that of a retort the circumstances are not favourable to free and easy drainage of its interior, and attentive observation of two or three cases of chronic flexions of the uterus, associated with so-called endo-metritis, will make it evident to the inquirer that the real relation subsisting between the bending of the uterus and the presence of fluid and profuse secretions from the uterine interior is one of cause and effect.

The analogy between cases of puriform discharge from the uterus and chronic cystitis due to stricture of the urethra, is, so far as is possible, complete. In both we have distension of a muscular organ to an unnatural degree with secreted products, irritation of the interior by the retained product, alterations of the fluid secreted, &c. The stricture of the urethra is analogous to the bend in the uterus—both obstruct excretion.

The various effects witnessed in cases of so-called endometritis are then explainable on the deficient drainage hypothesis. The view here expressed has been opposed and criticised in many quarters, but it is sufficient to examine the details of the cases published with the endeavour to controvert these views, in order to obtain evidence corroborative of their accuracy. The endometritis theory of uterine disease has suggested the necessity of making applications of caustic or other materials to the interior of the uterus in

order to get at the root of the supposed disease. This treatment has been found very serviceable in relieving patients of the symptoms which they presented. But the very process adopted of application to the interior of the uterus of the cauterising agents, of necessity so alters the shape of the uterus as to abolish for the time being the retention. The instruments inserted are generally nearly straight. The canal of the cervix is indeed sometimes artificially dilated in order more easily to apply the remedy, and by these means the flexion, which previously existed, is of necessity more or less destroyed. Thus one effect, at all events, is produced, viz. a complete and perfect drainage of the uterine interior. The patient is, we will suppose, cured after repetitions of this process; but now comes the question, How much of the cure depends on the straightening of the canal, with the consequent complete, if only temporary, drainage of the uterus, and how much on the internal cauterisation?

One method of answering the question is by an examination of the results of treatment limited to the straightening of the uterine canal. It is the fact that these results are of the most satisfactory kind, and they undoubtedly prove that intra-uterine medication, so much insisted on as necessary for the cure of endometritis, is not required, and that the supposed good effects of it would be equally witnessed after more simple treatment.

The following remarks of Dr. Thomas in the last edition of his work (1880) on applications to the uterine cavity in cases of endometritis may here be quoted. Dr. Thomas says: 'Enlarging experience during the past five years has led me to become sceptical as to the utility of the course. Observation and experience have so changed my own practice that I find myself very rarely resorting at present to applications above the os internum uteri. They very generally fail in curing the disease, and they are by no means void of danger.'

And with regard to the effect of the 'curette treatment for fungosities,' he says, 'in a great many cases he has had to repeat the operation of scraping about once a year for a long time' (p. 349).

*Fungous Condition of the Lining of the Uterus.*—It has been found in many cases of so-called endometritis that the mucous membrane lining the body of the uterus has presented a fungous condition. Under such circumstances there frequently occurs profuse losses of blood at the menstrual period and sanious leucorrhœa at other times. These fungosities have been frequently removed by the curette, and the roughened surface scraped away,



thus removing the fungosities, and no doubt, in many instances, with results which have been found encouraging to the further prosecution of this method of treatment.

These fungosities appear to consist essentially of the mucous lining of the uterus in a swollen hypertrophied condition, whereas they seem to have been treated as foreign bodies. In other words, they do not appear to be of a polypoid character or to resemble those growths which are liable to be met with in the interior of the uterus and for which actual removal is the proper and the accepted method of treatment.

A short time since a case came under my notice which enabled me to make an observation which seems to have an important bearing on the question as to the cause and nature of the condition described as fungoid excrescence or growth of the lining membrane of the uterus.

The subject of this case was an unmarried lady, 42 years of age, Up to four years ago she had had moderately good health, though never strong. At that time—four years ago—she was one day in a sailing-boat on the sea for a few hours. She became violently sick, and felt something give way in her inside. She remained ill for some time, after being carried ashore, and shortly afterwards she became the subject of severe losses of blood from the uterus. She was under medical treatment, and Dr. Gooding of Cheltenham diagnosticated anteversion of the uterus, for relief of which a pessary was employed. Two years before I saw her she came under the care of Dr. Milner Moore of Coventry, still suffering severely from hæmorrhages; after some little time he became convinced that a tumour of some kind occupied the fundus uteri. She improved under use of ergot, and wearing a Thomas pessary, but a year ago, the hæmorrhage being profuse, and the uterus considerably enlarged, he dilated the cervix, and found a growth which he thought polypoid, and by operation he removed a vascular sarcomatous growth from a broad space at the right portion of the fundus. Strong solution of perchloride of iron was applied. The treatment was of considerable service for a time, but latterly the symptoms had recurred.

On March 16, 1880, I saw the patient at Dr. Moore's request, Dr. Brockwell of Gipsy Hill assisting me in the management of the case. I found the patient excessively weak and much emaciated. She complained that the least movement or attempt to walk brought on bleeding and pain. Her appetite was gone and her sleep disturbed.

On examination I found the uterus acutely anteflexed, much congested, and the fundus the size of a cricket-ball, heavy, and tilted forwards and downwards; the cervix patulous and the tissues of the organ vascular and soft. The sound showed the uterus to be elongated, and by its means the organ was easily bent back to its proper shape, but

it rather quickly resumed the anteflexed shape on withdrawal of the sound.

A pessary was introduced to sustain the fundus anteriorly. In a day or two the uterus, owing to its great weight, overcame the pessary and it was removed.

On March 19, a more complete examination of the interior of the uterus was made, and it was found practicable to pass the finger quite into the body of the uterus, the tissues of the organ being so relaxed. That being done, it was found that the surface of the body of the uterus presented just above the internal os considerable protruding growths, smooth on the surface but like soft excrescences, the lower border very sharply defined at the internal os. And at that time it appeared to me probable that the growths, so prominent and distinct, were really of a sarcomatous nature. This being the opinion arrived at, it was decided to remove them by operation.

As preparatory to the operation, the patient was kept on her back. And every day the fundus was directed to be pushed up by the finger, and the anteversion thus as far as possible prevented, with the view of facilitating the subsequent operative procedure. Dr. Brockwell carefully carried out these manipulations.

The following is Dr. Brockwell's account: 'On March 20, the day following your visit, the uterus was large, heavy, and the fundus pressing down on the neck of bladder, tender, and seemed to be wedged in, if I may say so, against the os pubis. I, in accordance with your instructions, passed the first and second fingers up to the fundus and made steady pressure for some minutes; slowly, and after considerable pressure, the organ yielded and slipped up into position. I then placed the patient on her back, with a large pillow under the hips, and kept her there till next day, when, on re-inserting my fingers, I found the uterus had only partially returned; it yielded much more easily than the day before. I again placed the patient on her back as before, and on the third day, although a little forward, the uterus had almost entirely lost its tenderness, was very much smaller, and very slight pressure sufficed. I still kept her on the back, and on the fourth day I found the organ had retained its normal position and continued to do so till you came for the operation on the 31st, when, as you may remember, you found the uterus well in its place.'

The proposed operation was delayed until twelve days later, and on March 31 the patient was placed under ether. On now examining the uterus with the finger it was found that the interior of the organ had undergone a very remarkable change during the twelve days interval. The intumescence and projecting growths seemed to have almost disappeared—very markedly the projection just above the internal os had disappeared—and, in fact, there seemed to be little to remove. It was thought advisable, however, to scrape away with the curette the slight projection still remaining, and the surface was touched with nitric acid.

Dr. Brockwell continued to maintain the uterus in its proper place by occasional pushing up of the fundus, and other ordinary measures, careful feeding, and use of injections, were employed. On April 16 the uterus was found to have returned almost to its proper size; the fundus was in fairly good position, and a cradle pessary (rather large size) was inserted. The patient was wonderfully better, and on April 27 she was able to travel.

*Remarks.*—The condition of the patient was such as to give the impression of one suffering from malignant disease; and the result of the first examinations seemed almost to justify this view. The remarkable feature in the case was the rapid and almost complete disappearance of the growths from the interior of the uterus under the influence of rest, and the maintenance of the uterus in a proper position. There was no doubt left on my mind that the supposed growths were merely the congested hypertrophied mucous membrane of the uterus. For when the organ was so placed that its circulation became less embarrassed, this congestion and swelling subsided. The occurrence of severe bleeding on slight exertion was abundantly explained by the condition of the mucous membrane, for the exertion, producing greater flexion and greater obstruction to the circulation, intensified the congestion of the mucous membrane. The mere resting on the back and daily elevation of the fundus were then in this case found to have the remarkable curative effect on the lining of the uterus above described.

There is no doubt that the condition which I had found to be present resembled that observed by Dr. Milner Moore a year previously. The great emaciation, the great irritation, the profuse discharges, and the considerable tumour-like protrusions felt by the finger, seemed to favour the notion of a sarcomatous growth in the interior of the uterus. This notion was, of course, dispelled by the rapid subsidence of the growth which took place under observation.

The great vascularity of the lining of the uterus, which is proved to be ordinarily present during or just before menstruation, is no doubt in many cases intensified under various abnormal conditions. The lining of the uterus then becomes more swollen and soft, and the surface becoming broken down, as a part of the normal process of menstruation, the mucous membrane presents an irregular, villous, or shaggy aspect. The presence of such villous projections is probably indicative, then, not of new growth, or indeed necessarily of any abnormal growth, but is merely the result of extreme congestion of this mucous membrane. The con-



dition in question would be appropriately termed 'congestive hypertrophy' of the mucous lining of the body of the uterus.

The cause of the congestion which, in such cases as the above, determines the hypertrophy of the mucous membrane, may be different in different cases. In this particular instance the congestion seemed to be produced by the distortion of the organ. The acute anteflexion caused an impediment to the circulation in the organ, and hence general congestion, not only of the walls, but of the mucous lining.

It is a matter susceptible of easy clinical proof that the congested uterus is relieved by being placed in its proper position, and by restoration of its proper shape. I have many times observed this occurrence, but I never before had such unmistakable evidence placed before me of the effect of these mechanical restorative measures in reducing the congestive hypertrophy of the lining of the uterus.

The deductions to be drawn from the foregoing considerations in regard to the treatment of cases where we suspect or know of the existence of fungosities of the uterine mucous membrane are obvious.

For further information on the subject of the pathology and treatment of affections of the lining membrane of the uterus, the reader is referred to the chapters on 'Leucorrhœa' and 'Menorrhagia.'

## CHAPTER XI.

## ACUTE INFLAMMATION OF THE UTERUS.

## Nature and Treatment.

ACUTE inflammation of the uterus is a rare event. But it is always a very serious one, generally dangerous, and fatal to a degree.

*Idiopathically*, it occurs so rarely that it can hardly be described, the materials being wanting. It has been said to occur from sudden suppression of the menstrual flow; but the possibility of its so being produced is doubtful, the cases thus described having been probably accidental effusion of blood into the peritoneal cavity, a phenomenon which is liable to be attended with very severe symptoms. It is also stated to have occurred in connection with gonorrhœa.

*Traumatically*, it is a well-recognised phenomenon. Wounds, or operations on the cervix or os uteri, use of tents for the purpose of dilating the cervix uteri, the incautious use of instruments such as intra-uterine pessaries,—these are the causes of this rare but serious event.

The affection appears to be essentially of the nature of pyæmia, attended with severe pain, a well-defined commencement, and a rapid course. There is almost invariably evidence of the absorption by the internal lining of the cervix or uterine canal of certain decomposing materials, which surface has been previously broken, injured, or bruised at some point. Its symptoms much resemble those of puerperal septicæmia.

A typical case occurs as follows:—Within a few hours, sometimes within a few minutes, of the time of the absorption of the irritating agent by the uterus, the patient experiences an acute pain in the hypogastrium, concurrently with which she experiences a sharp and well-marked rigor, and a feeling of unmistakable and profound illness. The pulse instantly rises in frequency, running up in a few hours to 120, 130 in the minute, the temperature also quickly attains a great height, 102° to 103° being noted

within a few hours. The hypogastrium is acutely sensitive to the touch almost from the beginning; the patient lies with the knees drawn up, and shrinks before the slightest attempt to explore the state of the lower part of the abdomen. There may be sickness very shortly, or the sickness may be delayed in its occurrence; sickness of an uncontrollable character is often observed the following day and persists until the fatal termination. The vagina becomes very hot to the touch, the uterus itself is felt swollen and sensitive to an extreme degree. Profuse perspiration, generally given as a symptom of pyæmia, has not been present in the cases of acute inflammation of the uterus which I have observed.

The further progress of the disease is marked by increase of frequency of pulse, temperature running up to  $103^{\circ}$  or even  $107^{\circ}$ , continued prostration, extension of the inflammation (generally) to the peritoneum, hurried respiration, great weakness of the pulse, and death, or passing of the disease into a less acute stage, and, possibly, the beginning of recovery.

The septicæmia thus occurring is perhaps the most rapid in its course of any of the known forms of this affection, probably owing to the great vascularity of the uterus, and the great rapidity with which absorption from its interior is liable to occur.

The pathological appearances after death are usually undue size and softness of the uterine tissues, and evidence of peritonitis on the external part of the organ, effusion of lymph and puriform fluid in the abdomen. In the uterine tissues themselves there may be little evidence of change.

*Treatment.*—The early administration of powerful stimulants, such as quinine, ether, alcohol, appears the best treatment to follow in a given case. These remedies must be given in large doses. Tincture of iron is probably also serviceable. Copious injections of hot water slightly carbolicised should be given by the vagina. It appears to me probable that electricity, by which the contractions of the uterus could be excited, would be beneficial. A large linseed poultice with laudanum should be applied to the hypogastric region.

In cases of septic peritonitis following ovariotomy the lowering of the temperature by cold affusions to the head by means of the ice-bag, has proved in some cases of great service. There seems no reason why the same treatment should not be applied to the cases now under consideration. Fortunately they occur rarely, but it has occurred to me that the suggestion is worthy of practical trial.



## CHAPTER XII.

## DEFECTIVE DEVELOPMENT OF THE UTERUS. CONGENITAL MALFORMATIONS.

## DIAGNOSIS.

LIST OF CASES.—Absence of Rudimentary Formations of the Uterus—Infantile Uterus—Uterus Unicornis—Double Uterus—Absence of the Os Uteri.

DIAGNOSIS.—The diagnosis of the various forms of irregularity of development of the uterus is important. Associated as these defects usually are with alterations or defects in the formation of the vagina, it is convenient to consider their diagnosis together. In the chapter on ‘Diseases of the Vagina,’ detailed directions for such investigation will be found.

At University College Hospital, in a period of about five years, six cases of congenital malformation occurred out of about 1,200 cases. The absolute frequency of these malformations is of course not to be gathered from these statistics, as the conditions might have existed in other instances not examined.

*Abstract Account of Cases of Imperfect Development of Uterus.  
University College Hospital.*

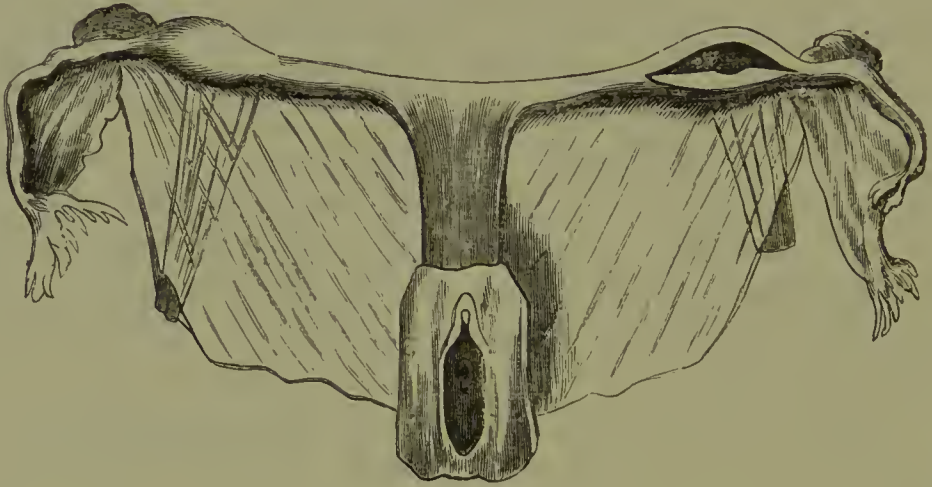
Age	Initials	Married or Single	No. of Children	Remarks
18	L. J. . .	S.	—	A very slight show at æt. 15 for 1 day. Nothing since. Uterus small. Half an inch too short. Molimen slight.
21	E. J. . .	S.	—	No menstruation. Uterus measures 1 inch only in length.
22	E. H. . .	M.	—	No menstruation. Uterus a little shorter than normal. Has a sister in same state.
26	E. J. B. .	M.	0	Married 2 years. Menstruation almost <i>nil</i> . A spot or two occasionally. Uterus appears to have a <i>double</i> cavity, but a single os.
28	Mrs. D. .	M.	0	Married 4 years. No catamenia. Uterus only half an inch long.
30	M. W. . .	S.	—	No menstruation. No evidence of action of ovaries. Uterus size of a pea. Vagina half natural length. Breasts undeveloped. Cords can be felt in situation of Fallopian tubes <i>per rectum</i> .

The following are the chief varieties of defective development of the uterus:—

#### ABSENCE OR RUDIMENTARY FORMATION OF THE UTERUS.

Cases of entire absence of the uterus are of extreme rarity, and there are good reasons for believing that when apparently absent the organ is yet represented by imperfect yet—to the anatomist—recognisable traces of a structure having the outline and general arrangement of the uterus. The ovaries—the essential portions of the female generative organs—are observed to be present in cases where the uterus is represented by mere traces of muscular fibres and cellular tissue only. A type of the condition here alluded to is a case recorded by Rokitansky,<sup>1</sup> in which the vagina consisted of a fossa one inch long, the uterus represented by

FIG. 27.



muscular fibres arranged in the form of the uterus, the Fallopian tubes more decidedly pronounced and presenting each a small cavity, the ovaries present (fig. 27).

The particular part of the uterus formed may be limited chiefly to the cervix, to the upper part, or to one side.

Absence or rudimentary formation of the uterus may be associated with complete absence of the vagina, or with rudimentary formation of this canal. With respect to the condition of the vagina in such cases, the following is an illustrative fact: I had occasion a few years since to examine a lady æt. 20, presenting the following conditions; pudendum covered with hair, labia majora well developed, vagina represented by a mere little pit admitting the

<sup>1</sup> See Kussmaul's valuable work, *Von dem Mangel, der Verkümmernng und Verdopplung der Gebärmutter*, Würzburg, 1859, p. 20.

uterine sound only half an inch, no uterus or hard body to be discovered between the bladder and rectum high up. Signs of ovarian activity had been observed on two or three occasions, giving reasons for the belief that the ovaries were present. The breasts were well developed.

#### INFANTILE UTERUS.

Under this term are included those cases in which the uterus is regularly formed and, so far, complete in its parts, but where it retains during adult age the size the uterus ordinarily possesses during early childhood, or prior to the event of puberty. At the age when the arrival of puberty is generally witnessed, the growth of the uterus proceeds rapidly, the dimensions which it then acquires being those which, with certain exceptions, it retains until the end of what may be termed sexual life. But in a few instances, when the age of puberty arrives, the uterus fails to undergo the proper development, and retains its child-like size far beyond the customary period. In such cases menstruation does not usually occur, although the patient may present signs of ovarian functional activity. Various degrees of this defective development of the uterus are observed, all, however, associated with one symptom, viz. amenorrhœa or imperfect menstruation. In some instances the condition primarily at fault is congenital, while in others it appears to be connected with mal-nutrition at the critical period of the arrival of puberty.

A sufficiently typical instance of the infantile uterus is that of a young woman who was under my care at University College Hospital. Her age was 22; she had never menstruated, the external generative organs and the breasts well developed, the uterus slender, two inches long as measured by the uterine sound, the vaginal portion of the cervix slight, the os uteri exceedingly small. This patient began to suffer from symptoms indicative of ovarian activity at the age of sixteen, but menstruation had never actually occurred. Several cases of infantile uterus will be found recorded in Kussmaul's work. Very numerous variations are met with. Thus the body of the uterus may be imperforate, or the uterus may have two cornua instead of being a single organ, or the imperfect development may only exist as regards the cervical portion.

Further, the history of certain recorded cases renders it evident that the infantile uterus may undergo at a very late period the



ordinary development, and also that, although in by far the majority of cases the subjects of this condition are destitute of the power of conception, yet that the contrary may be observed. The breasts are generally small; the external generative organs, the labia, clitoris, and vagina, also smaller than usual; the pudendum is, as a rule, imperfectly covered with hair. The individual, as a rule, is stunted as regards size and development of the body generally, but by no means always so. The ovaries have been found quite absent, but this is generally not the case; the ovaries also contain Graafian follicles, and the menstrual molimina are more or less well marked, although the menstrual discharge is almost always entirely absent. Sexual desire is frequently, but not always, found wanting.<sup>1</sup>

#### UTERUS UNICORNIS.

Under this term are included those cases in which the uterus presents a division superiorly into two parts or cornua, one of which is more developed and larger than the other. There are several varieties in reference to the relative size of the two cornua in different cases, and obviously when the two cornua are nearly

FIG. 28.



alike in point of size the term 'unicornis' is not applicable. In Kussmaul's celebrated work all these varieties will be found described together with various exceedingly interesting facts relative to the history of pregnancy under these unusual circumstances. The second cornu is always present, although it may be

<sup>1</sup> Kussmaul, *op. cit.* p. 94.

exceedingly small. A typical case of the uterus unicornis is that recorded by Pole.<sup>1</sup> (See fig. 28. The uterus is here seen from behind.)

#### DOUBLE UTERUS.

The several varieties of the double or bipartite uterus are, as is the case in other instances of malformation, traceable to arrest of development in early foetal life, and with reference to all of them it may be said that they represent what is a normal and persistent condition of the uterus in inferior orders of mammalia.

A most complete separation of the two parts of the uterus is sometimes witnessed, each side representing a separate cavity opening below by a separate orifice into a distinct and separate vagina, each vagina presenting externally a distinct orifice. This condition is very rare.

The next variety—the uterus duplex bicornis—is well illustrated by a case recorded by Schroeder<sup>2</sup> (see fig. 29). The two halves of the uterus are here—externally—connected, but the two cavities are completely distinct.

FIG. 29.



Here it may be stated that the division between the proper cavity of the uterus and the Fallopian tube is always decided by the position of the round ligament. Unless this be attended to, there would be a liability of confounding the uterus bicornis with the more completely and distinctly double uterus.

<sup>1</sup> *Memoirs of Med. Soc. of Lond.*, 1794, p. 507, and Kussmaul, *op. cit.* p. 22.

<sup>2</sup> From Kussmaul, p. 25. In the same work, p. 197, will be found a drawing from a case of Carus, in which one uterus is occupied by a foetus.

Following Kussmaul's arrangement, another variety is that in which the uterus appears externally of the normal form, the cavity being, however, completely divided into two by a septum running down the middle. This Kussmaul terms the 'uterus duplex omnino conjunctus vel u. septus.' Rokitansky's 'uterus bilocularis' (fig. 30) is from a case of Liepmann's,<sup>1</sup> and was taken from a girl æt. 19. The vagina was in this case double, as also the uterus, although there is no indication of this externally. The vaginal canals are laid open from behind.

There are yet further modifications. Thus, the septum between the two sides of the uterus may only extend half-way down the

FIG. 30.



uterus, in which case there is only one os uteri, while the cavity superiorly is double ('uterus subseptus'), or again the uterus may be single at the cervix, and completely double above that point, constituting the 'uterus bicornis unicollis.' Instances of these two varieties are given by Kussmaul.

Lastly, a case of Eisenmann's may be referred to which stands, as Kussmaul remarks, midway between the uterus bicornis and the uterus septus: here the uterus is distinctly double, as also the vagina, the two uteri are quite parallel, and the two cavities long and narrow. A groove marks externally the division between them.

<sup>1</sup> See Kussmaul, *op. cit.* p. 26.



Some remarks on the *treatment* of cases of imperfect development of the uterus will be found in the chapter on Amenorrhœa.

#### ABSENCE OF ORIFICE OF OS UTERI.

This is another congenital malformation which is met with but very rarely. The aperture at the lower extremity of the cervix uteri (os uteri externum) may be absent, or the canal may be imperforate higher up. In either case there may occur an accumulation of menstrual fluid when puberty arrives. This condition may be associated or not with an imperforate vagina or with absence of the latter canal.

## CHAPTER XIII.

## DISPLACEMENTS, DISTORTIONS (FLEXIONS), OF THE UTERUS.

## 1. NORMAL SHAPE, POSITION, AND MOVEMENTS OF THE UTERUS.

NORMAL SHAPE, POSITION, AND MOVEMENTS OF THE UTERUS.—Form and Shape, how preserved in a State of Health—The Proper Position of the Uterus: Discussion of various Opinions on the Subject: Schultze, Schroeder, De Warker, &c.—Conclusion arrived at—Normal Movements of the Uterus—Degree of Fixation of the Uterus—Motions described; 1, Descent; 2, Rotation on Transverse Axis; 3, Flexion—Effect of Evacuation of Contents of Bladder considered.

## THE NORMAL SHAPE OF THE UTERUS.

THE uterus may be said to consist of two parts: the body, or uterus proper, and the cervix; the general shape of the organ being somewhat that of a pear. The body of the uterus is a little less rounded posteriorly than anteriorly. The junction between the body of the uterus and the cervix is not indicated by the external outline. The width of the body of the uterus is greater than its antero-posterior measurement, one result of which is that the cavity of the uterus proper has a somewhat triangular shape. The thickness of the walls of the body and of the cervix are, when the uterus is unimpregnated, and in a state of health, such that the cubical space comprised by its cavities is very small, the body of the uterus presenting a cavity wide from side to side, but with its anterior wall almost in contact with the posterior, and the cervical cavity being a tube, somewhat fusiform in shape, becoming narrow above where it opens into the uterine cavity proper (internal os uteri), and narrow also below where it constitutes the external os uteri.

The general shape of the uterus is pyriform, as already stated, but it is generally considered that in its normal healthy state the axis of the uterus is not quite straight, but that it is a little bent, so as to present a slight concavity on its anterior aspect. This is what is termed the natural anterior curvature of the uterus. It appears that before puberty this anterior curvature is more

decidedly marked, but that when puberty arrives and the uterus undergoes its full development, the anterior curvature is, in part at least, lost. It seems, further, certain that in some few cases the pre-pubertal degree of anterior curvature is continued for a longer time than usual, especially when circumstances are adverse to healthy development and growth of the body generally. The presence of slight anterior curvature after puberty has been reached is a matter of considerable importance in discussion of the question as to how far anteflexion of the uterus is a disease or not, and it has over and over again been used as an argument on the negative side. The importance of a correct understanding on this subject is therefore considerable. There is no doubt in my own mind that a slight anterior curvature is normal, when the uterus has reached its full healthy development. It is, however, as absurd and illogical as it appears unpractical to assume that because a slight anterior curvature of the uterus is normal, no excess in the degree of anterior curvature can be abnormal; and yet the argument has been strained to even this extent.

In fig. 31 is represented what I consider to be the normal degree of anterior curvature in the multiparous uterus, the patient being supposed to be in the standing position.

It cannot for a moment be doubted that in a state of health the uterus has a certain standard of form, departures from which are to be regarded as abnormal. The various organs of the human body have the form and structure assigned to them which are designed to adapt them to their several uses. It would be strange if the uterus were an exception to this. Beauty of outline and shape of the human body are generally regarded as a sign of health, and the uterus has a proper ideal outline and shape which may be expected to fit it for the healthy performance of its natural functions. *A priori* reasoning alone would lead us to the conclusion that the uterus is, when possessed of its natural form, better adapted for its purposes than when distorted: as a matter of fact clinical experience shows that when it has lost its natural form grave inconveniences, disturbance of important functions, dysmenorrhœa, sterility, &c., generally result.

It is necessary to consider for a moment the arrangements nature has provided for the preservation of the form of the uterus. The most important of these is the rigidity of the uterus itself, a quality conferred upon it by the density of its structure. When the unimpregnated uterus is in a state of health it may be practically considered as an almost solid body, for the cavities



within are small and detract little from its solidity. 'The inherent strength and resistance of the proper tissue of the organ' are, as Dr. Thomas remarks, the chief safeguard against bending of the uterus. The tissues of the uterus have naturally a hardness and firmness much greater than that of ordinary muscle. It is this hardness and firmness which secure the permanency of the shape of the uterus. The uterus in a state of health may be likened to a solid pear-shaped mass of india-rubber, which preserves its shape by reason of its solidity, and which returns to its shape when slightly bent by reason of its elasticity. But the pliability is not so great as in the case of india-rubber, nor is the elasticity so considerable. These considerations are very important in reference to the causation of flexions. In a former chapter abnormal softness of the uterus has been described as a pathological condition; the foregoing considerations render it evident how softness of the uterine walls would take away from the uterus that rigidity and firmness on which it has to rely for the preservation of its natural form and shape.

It does not appear that the attachments and ligaments of the uterus aid it materially in maintaining its proper shape, though of course they affect its position. The chief attachments of the uterus are at the middle portion, the two extremities of the organ being left comparatively free. The attachments of the uterus are indeed such that they rather detract from than add to its rigidity, and they do not certainly materially increase its rigidity as a whole. The axis of suspension of the uterus is a straight line passing transversely across the middle of the organ. The two poles of the uterus are free to move as compared with the central portion; and the condition of the fundus, poised as it were, and free from anterior or posterior attachment, gives it an instability which is not favourable to the preservation of the proper shape. The same holds good in reference to the vaginal portion of the cervix, which presents a conical protuberance into the vaginal canal and is likewise free and likely to be acted on by disturbing mechanical agencies.

#### NORMAL POSITION OF THE UTERUS.

Many disputed questions hinge on the determination of what is the normal position of the uterus. It might be considered that it is easy to determine this elementary point, but nevertheless it is one on which there are grave differences of opinion. In an exhaustive essay 'On the Normal Position and Movements of the

Unimpregnated Uterus,' by Dr. Ely Van de Warker,<sup>1</sup> the subject has been recently discussed and a *résumé* given of the opinions of various authorities on the subject. In Germany, particularly, Kohlrausch, Braune, Schroeder, Schultze, and Martin have expressed views on the subject of a conflicting character.

Dr. de Warker, rightly, as it seems to me, affirms that the actual position of the organ in the living must be studied in the living. If post-mortem sections are appealed to great care should be taken to avoid sources of error. An instance of the necessity for this caution is afforded by the Atlas of Braune, in which the section of a frozen subject (a young woman) is given, and shows the position of the uterus (in the early gravid state) in the pelvis. On first looking at the plate it appeared to me that the lower part of the uterus was represented unusually low down in the pelvis, and on referring to the text I found it stated that the subject in question was a woman who had died from hanging. The mode of death was evidently the cause of the extremely low position of the os uteri, of the urethra, and of the vaginal aperture. And yet this plate has apparently been taken by some authorities as a guide to the normal position of the uterus. Schroeder appears to have been influenced by this particular plate, for a line drawn from the under part of the pubes to the tip of the coccyx passes through the uterine cervix in the drawing which he gives as representing the *normal* position of the uterus. Schultze criticises this position, and Schroeder defends it by appealing to Braune as an authority!

As regards the proper position of the uterus, there are two questions to be decided—one as to the position of the uterus in the pelvis in relation to the brim and outlet; the other as to its relation to the anterior and posterior walls of the pelvis.

The idea that I have been led to form from actual observation is that under normal circumstances the uterus occupies a nearly median position in the pelvis—that is to say, that the top of the fundus either corresponds to or is just below the plane of the brim, and that the os uteri is just a little above the plane of the outlet (pubo-coccygeal line); also that it is placed in the pelvis about equidistant from the pubic bones and the middle of the sacrum. The position of the uterus as just described corresponds to what is termed the curve of Carus, and it appears to me that the uterus does in a state of health occupy this position, subject to certain disturbances which will be presently alluded to in connection with the question as to the natural movements of the uterus. Reference

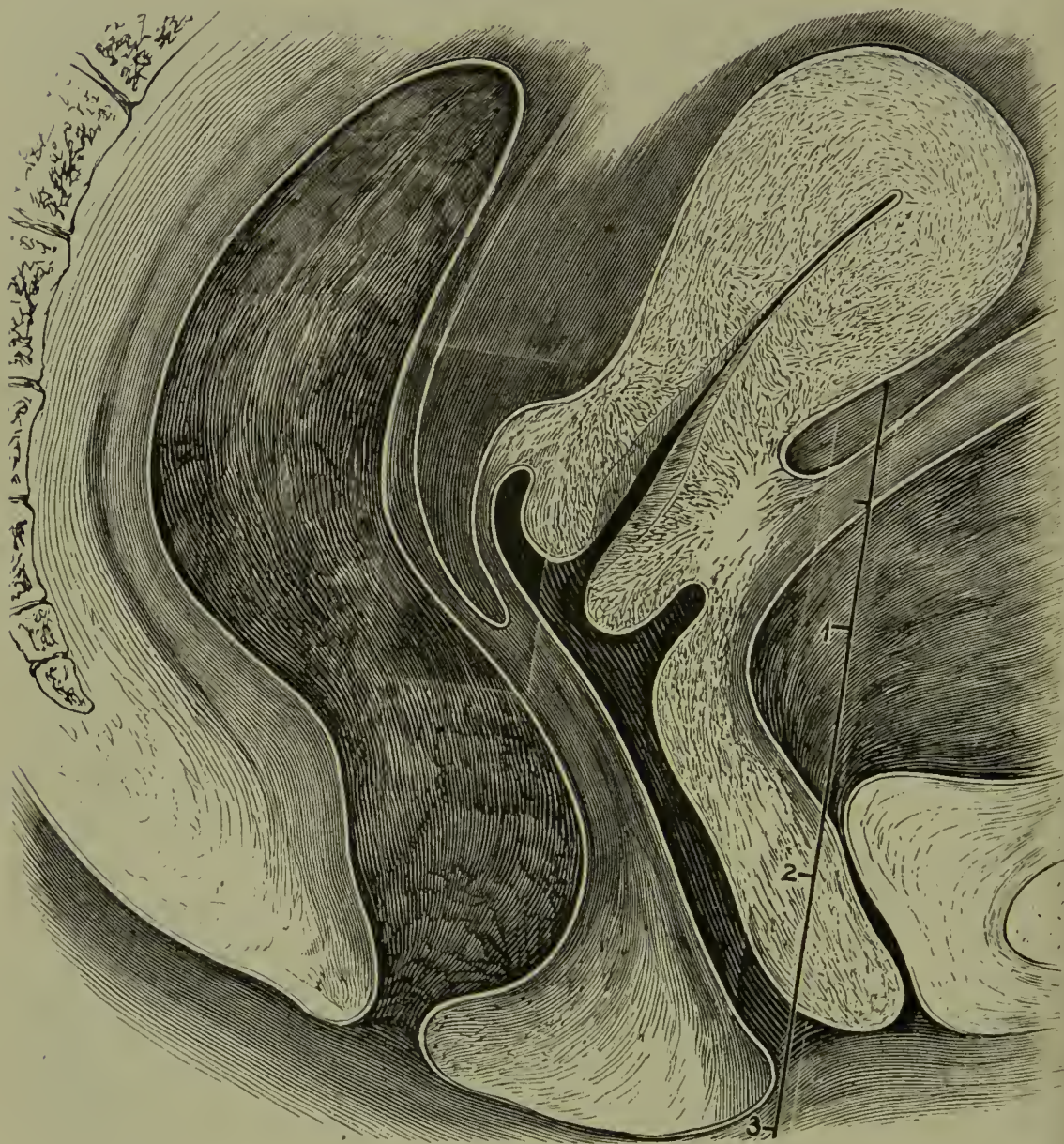
<sup>1</sup> *American Journal of Obstetrics*, vol. xi. p. 314.



to the accompanying drawing (life-size), which represents what I consider to be the typical position of the os uteri on a sectional lateral view, will render this statement intelligible. The drawing has been carefully made on the basis of one by Kohlrausch, but in some respects a little altered from this author's figure.

In the drawing below the bladder is represented as being full.

FIG. 31.



It is probable that when the bladder is empty the upper part or body of the uterus is a little nearer the pubes than as above shown. This point will be presently further enlarged upon.

The above view as to the normal position of the uterus is not the one entertained by Schultze or Schroeder, or De Warker. Schroeder places the uterus as a whole lower in the pelvis. Schultze



places the os uteri in about the same position, but gives the body of the uterus a much greater inclination forwards. De Warker simply adopts Schultze's view of the subject. Schultze, followed by De Warker, contends that the uterine body becomes anteverted as the bladder is emptied (fig. 32), and assumes a more upright position when the bladder is full. Such is not the conclusion my observations have led me to form. It appears to me that the space created between the uterine body and the symphysis pubis by the evacuation of the bladder is normally filled by the descent of the intestines upon the bladder, and that the uterus, when in a state of health, remains, as a rule, comparatively unaffected by the emptying of the bladder. Schultze's experiment on living subjects appeared to him to show that when the bladder is empty, the uterus follows it, but we have no proof that the experiments were performed on subjects really in a state of health, and they are opposed to the results of my own observations. Martin expresses his opinion as adverse to that of Schultze also in respect to this supposed version of the uterus on emptying the bladder. The notion of anteversion being natural is favoured by the circumstance that there is a slight natural anterior curvature. It is also favoured by the circumstance that what I should term *abnormal* anteversion and flexion are common, as will be by-and-by explained. My own observations have led me to the conclusion that when the body of the uterus persistently occupies a position such as would be considered natural by certain of the authorities above cited, symptoms of a troublesome character are always observed and indicate the abnormality of the position the uterus occupies.

In conclusion, after comparing various opinions and testing them by the results of personal observations, my opinion is that, in a state of health, the unimpregnated uterus has a nearly median position in the pelvis; that it is incorrect to imagine that the fundus, in a state of health, encroaches materially on the space devoted to the bladder; and that it is incorrect to suppose that, in a state of health, the os uteri is so low down as to rest on the floor of the pelvis.

#### THE NORMAL MOVEMENTS OF THE UTERUS.

The uterus is suspended in the pelvis by the various ligaments and attachments already described. If we imagine a line drawn horizontally from side to side, passing through the middle of the uterus, this would represent what has been termed the axis of sus-

pension of the uterus. This axis of suspension is not rigid ; but in health the uterus has a tendency to come back to this position when removed from it. The effect is, that the upper part of the uterus, as well as quite its lower part, are more movable than the centre. A rotatory movement to a limited extent, backwards or forwards, may be readily made on this imaginary axis of suspension, and when we come to examine the *abnormal* movements of the uterus, this rotatory motion will be shown to be a very important element in the consideration.<sup>1</sup>

The fixture of the uterus is such that a certain degree of freedom of movement is allowed, and there can be no doubt that within this range movement does habitually occur. We have now to determine what this normal range of movement is. The ligaments and attachments of the uterus limit its motion. Anteriorly the uterus has attachments of an extensive character to the bladder, and through the bladder and its peritoneal investment, to the abdominal wall in front ; this attachment is such that it generally prevents the uterus as a whole from moving directly backwards : if the bladder be much distended it is at first pushed backwards, and if the distension become still greater a tilting of the body of the uterus backwards results.

Behind the uterus we find the sacro-uterine ligaments, one on each side, near the middle line. These vary very much in strength in different cases, according to my observation. In some cases they are hardly recognisable by the touch. In other cases they are firm bands. They tend to prevent motion of the middle part of the uterus forwards, and together with the utero-vesico-pubic attachments they secure for the uterus a median position between the sacrum and the pubic bones. But they do not affect the fundus uteri or the os uteri except in an indirect manner. The utero-sacral ligaments control also descent of the uterus, and tend to

<sup>1</sup> On this subject reference may again be made to the Essay of Dr. Van de Warker already quoted. In a previous essay, published in 1875, this author gives results of observations on the normal movements of the uterus, made by means of an india-rubber bag distended with water, and communicating by a tube with a column of mercury. His inquiries were made to determine the effect of expulsive efforts made in various positions of the body. It was found that descent of the uterus (indicated by the instrument), produced by expulsive effort, was much greater in the standing than in the sitting position, the difference being equal to  $\frac{5}{10}$  inch of mercury. It was also found that the difference produced by mere position, without expulsive action, between standing and sitting (due to superincumbent visceral pressure) was represented by  $\frac{6}{20}$  inch of mercury. The squatting position, according to these experiments, gave, next to the actual lying-down position, the least amount of pressure on the uterus.

prevent the uterus as a whole from moving down on to the floor of the pelvis or towards the vaginal aperture.

The broad ligaments of the uterus, including the cellular tissue enclosed in their layers and surrounding the plexus of vessels which lie laterally to the uterus within the layers of the broad ligaments, have the important effect of preventing lateral movements of the uterus; they secure, or help to secure, the position of the uterus in the middle line of the body; they also tend very much to prevent descent of the uterus as a whole, and they appear to be in fact the chief means by which the uterus is suspended in the pelvic cavity.

The round ligaments of the uterus have been lately made the subject of inquiry by Martin and Lieberkuhn (quoted by De Warker *loc. cit.*). The round ligaments contain smooth and striped muscular fibres, the smooth ones attached to the uterus on its antero-lateral aspect on each side. The striped muscular fibres are inserted by tendinous and fleshy terminations into the aponeurosis of the internal oblique muscle, the outer ring at its upper and under side, while the smooth fibres pass through the inguinal ring to the connective tissue on the mons Veneris. The round ligaments are stated by Rainey to increase in size during pregnancy. Martin believes that the striped fibres raise the fundus towards the pubes and further the process of insemination. It seems probable that the round ligaments may have a certain effect in tending to prevent the movement of the fundus uteri backwards.

The vagina is to be considered as one means of support to the uterus, and thus to prevent motion downwards. Here it is necessary to point out that when we speak of the vagina, we include really the cellular tissue round the vagina and the processes of cellular tissue by which the vagina itself is fixed. In a very interesting paper, Mr. D. B. Hart, M.B., has recently discussed the question of the normal support of the uterus.<sup>1</sup> He points out that the vagina has no side walls, that it is a slit parallel to the pelvic brim, and that it constitutes a pelvic diaphragm, the floor and roof being in apposition, and the uterus being set at about a right angle to this diaphragm. It is this diaphragm which acts, according to Mr. Hart, as the chief support of the uterus. He enforces his argument by appeal to the sections of frozen specimens such as those of Braune. According to this view, the perinæum is a

<sup>1</sup> *A Study of two Mesial-vertical Sections of the Female Pelvis in Relation to the Normal Support of the Uterus and Prolapsus Uteri.* By D. B. Hart, M.B. Obst. Soc. of Edin. Feb. 1879.



most important part of the support of the uterus, because, if it be partly or wholly destroyed, the anterior part of the vaginal wall slips over the posterior, the bladder descends, and the uterus follows it. These arguments are in substance sound, and they appear to be especially applicable in regard to the etiology of what may be termed external prolapsus. The experiments performed by Dr. Savage<sup>1</sup> some time ago are confirmatory of the idea that the general cellular tissue of the pelvis is exceedingly important as a means of holding the uterus in position and preventing descent.

Reviewing the whole subject of the attachments of the uterus, it becomes evident that the uterus is held in its place mainly by what may be termed the close packing of the pelvic contents, by the framework of the vagina, the framework of the bladder, and the broad ligaments, and by the vessels, the cellular tissue surrounding the vessels, by certain strengthening fibres in various positions, and in a most important degree, by the perinæal structures. The attachments are such that no considerable motion is easily permitted when the pelvic contents are in a state of health. When the perinæum is not intact, as is frequently the case in women who have borne children, an important safeguard is removed. In the chapter on 'Prolapsus' this part of the subject will be again considered.

The motions of the uterus may be described as follows: It has an upward motion and a downward motion, very little lateral motion, but more anterior or posterior motion. It would be probably correct to say that, *in a state of health*, the range of upward and downward motion does not exceed two inches, while the range of anterior and posterior motion is generally not more than one inch and a half. The extent of lateral motion is probably one inch.

But the motion of the uterus is not a simple motion. The uterus being fixed chiefly at its middle part, when any force begins to act upon it the result usually is that a compound motion results. Thus the uterus, when pushed downwards, as in the act of straining, does not retain its longitudinal axis in the same position, but it may be tilted to a certain degree at the same time. Thus the uterus may descend as a whole, but the upper part of it may descend more than the middle part. In such a case we have descent, together with what has been termed 'version,' but which would be more correctly designated 'rotation' (on its transverse axis of suspension). But there arises a further complication. If

<sup>1</sup> *Illustrations of the Surgery of the Female Sexual Organs.*

the uterus were a solid rod, the axis of the organ would be always the same, though it would not be always in the same place. But inasmuch as the uterus is in a certain degree a pliable body, it is liable to be bent and the shape of its axis changed. We thus have three kinds of motion possible. For instance, there may be—  
 1. Movement downwards. 2. Tilting of the uterus (version, or, as above suggested, more properly ‘rotation’) on the transverse axis. 3. Bending or flexion of the uterus.

In the accurate estimate of this conjunction of motions we have

FIG. 32.<sup>1</sup>

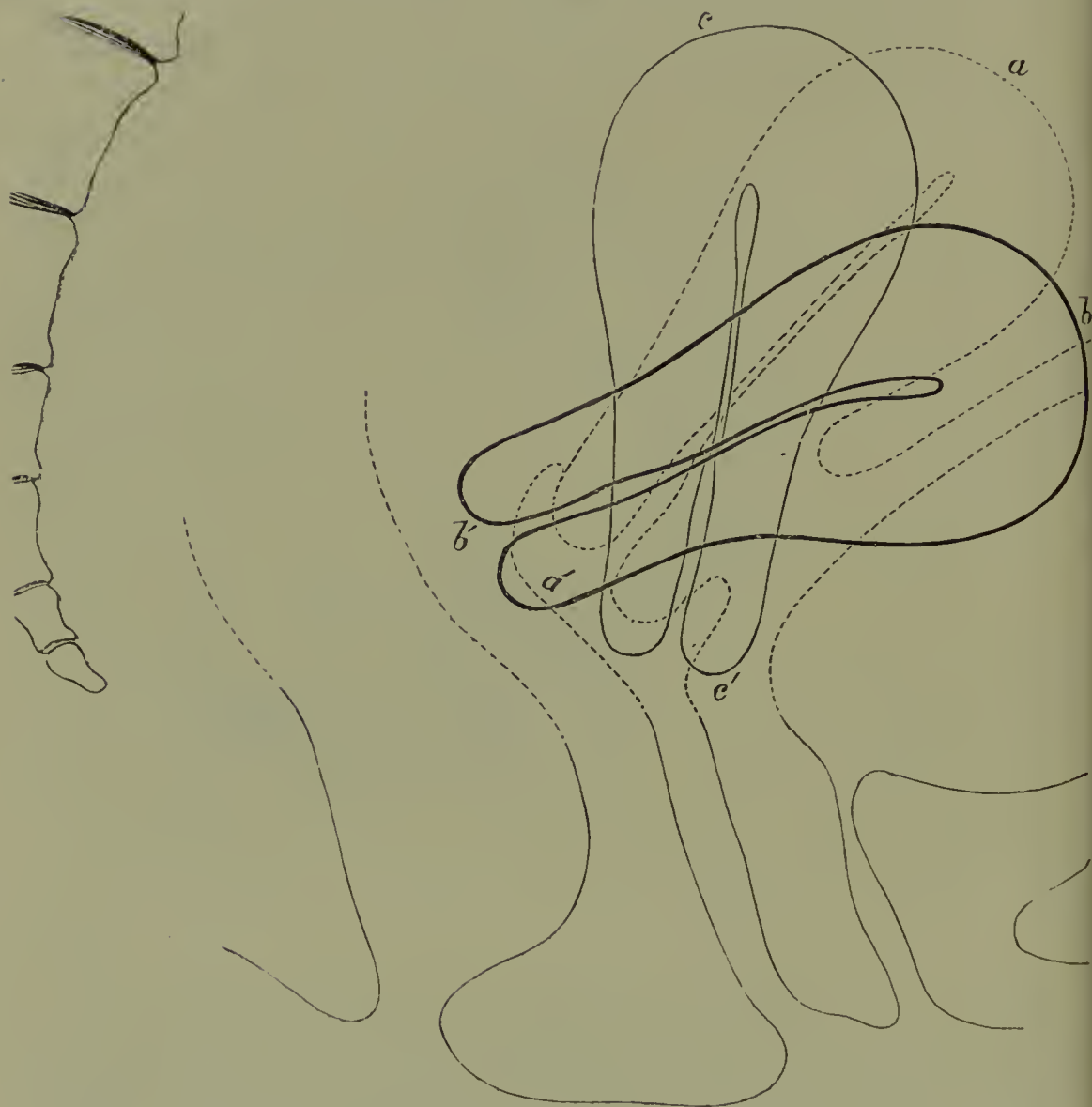


the basis for the true pathology of uterine flexions and displacements. The natural movements of the uterus are usually complicated, as above described, descent directly downwards, for instance, being less common than downward descent together with a little rotation (version) and a little flexion. When the uterus is in a state of health it quickly returns to its normal position as soon as the application of the moving force ceases, and there is little doubt that

<sup>1</sup> Fig. 32, copied from Schultze, represents his notion as to the condition of the uterus when the bladder is empty.

these slight oscillations habitually occur during changes of position of the body, during exercise, during the natural expulsive efforts, &c.

The particular motion of the uterus about which there does not appear to be uniformity of opinion is that connected with evacuation of the contents of the bladder. It is the opinion of some, as already stated at p. 131, that the body of the uterus habitually

FIG. 33.<sup>1</sup>

falls or moves forward as the urine escapes from the bladder, and that this anteversion and flexion of the uterus is a perpetually recurring event. I believe this opinion to be incorrect. It is possible there may be a slight tilting or rotatory movement forwards when the bladder becomes emptied, but the descent of the top of the fundus uteri, under such circumstances, does not in a

<sup>1</sup> Fig. 33 represents the normal range of motion of the uterus.



state of health, according to my observation, exceed half an inch in amount, whereas, according to Schultze's (see fig. 32), the top of the fundus descends as much as two inches, or even more, on complete evacuation of the vesical contents.

When the bladder is rather fuller the uterus as a whole may be pushed backwards a little without being bent, and when the rectum is very much distended, the uterus may as a whole be pushed forwards. When expulsive efforts are made, it is obvious that the result will be different according to the condition of the rectum and bladder. If both are in a medium state of fulness the uterus will be made to descend towards the floor of the pelvis, and the posterior part of the vagina will descend with it. There may be little rotation (version) or flexion under such circumstances. When the bladder is very full the expulsive effort may, as has been shown by experiments performed by Dr. Braxton Hicks, result in a retroversion of the uterus. Not long since I had under my care a young lady suffering from retroversion and flexion, which was certainly due to long-continued retention of urine during a long railway journey. When the bladder is not distended the expulsive effort projects the uterus downwards and at the same time may produce extreme anteversion. These are of course extreme events, and they are here mentioned because there can be little doubt that they are only exaggerations of what probably happens every day, but to a very much less considerable degree, and when also the uterus and its surroundings are in a state of health. The accompanying drawing (fig. 33) exhibits what may be described as the normal extent of the motions of the healthy uterus. *a a'* shows the position of the uterus in a state of rest; *b b'* shows the degree of anterior tilting (or rotation) which occurs under various circumstances—emptying of the bladder, &c.; and *c c'* shows the degree of posterior rotation which may occur. It will be observed that in anterior rotation the os is carried backwards, whereas in posterior rotation the os is carried forwards. Moreover, in both the latter cases the os is seen to be rather lower than usual in the pelvis.

## CHAPTER XIV.

## DISPLACEMENTS, DISTORTIONS (FLEXIONS), OF THE UTERUS.

## 2. PATHOLOGY AND GENERAL HISTORY.

Nomenclature—Flexion, Distortion, Version, Prolapsus—Complex nature of Cases—Frequency of Distortions and Displacements—Statistics from Author's Hospital Practice—Statistics from Private Practice.

NOMENCLATURE.—When the uterus is bent upon itself it is said to be *flexed*, and when the flexion, passing beyond the normal limit, has become chronic the malady is a *distortion* of the uterus. When the alteration of shape is known to have occurred *after* puberty, or thereabouts, the affection is properly spoken of as a distortion. Malformations of the uterus are congenital. Occasionally it is rather difficult to distinguish a malformation from a distortion of the uterus.

By *version of the uterus* (*rotation* backwards or forwards on the transverse axis) is meant an inclination of the organ forwards, backwards, or to the side, as the case may be, constituting *anteversion*, *retroversion*, *lateriversion* (*right* or *left*).

It is very generally the case that *version of the uterus is conjoined with flexion* of the organ, though in some cases the axis of the uterus is actually undisturbed, and there is version pure and simple.

Another result generally occurs, viz. that there is a certain degree, often a very great degree, of *displacement of the uterus*, conjoined with the distortion. Flexion of the uterus necessarily implies a degree of displacement of the body of the uterus, or of the cervix. Thus, in a case of retroflexion the fundus uteri is relatively much lower in the pelvis than in the healthy uterus, and it is thus 'displaced.' But there are two distinct kinds of displacement. Thus, sometimes we find the uterus as a whole not materially displaced from its proper position in the pelvis, but certain parts of it are removed from their proper place. More often, however, it is the fact that there is both a relative and a general displacement of the uterus. Nothing is more common,

indeed it is the rule, to which there are exceptions, to find considerable descent of the uterus in the pelvis, conjoined with marked distortion.

The word *prolapsus* is used rather widely. By some it is restricted to cases where the uterus is only partially protruded, the term *procidentia* being employed to designate complete extrusion of the uterus. Using the term *prolapsus* in its widest sense, we find *prolapsus* associated very frequently indeed with distortion of the uterus, and this applies both to cases where the *prolapsus* is slight in degree, or so severe as to amount to *procidentia*.

Numerous figures, illustrative of the above remarks, will be found in the succeeding chapters.

COMPLEX NATURE OF CASES.—From the foregoing remarks it will be evident that there are a multitude of complications possible, and as a fact it is very rare to meet with any one of the conditions, version, flexion, or *prolapsus* of the uterus in a simple and unmixed form.

This is a point of considerable importance, for it is impossible, unless it is duly regarded, to make any advance in knowledge of the subject. Cases as they are met with in practice are generally complex: they are as a rule complex in more than one sense of the word. The complexity is not merely a mechanical one—there are also various vital or functional disturbances entering into and complicating almost every case. Thus, flexions and displacements of the uterus are almost invariably only a part, though a very important part, of the affection actually present. The condition of the general health, the condition of the uterine tissues—these are quantities liable to vary exceedingly in different cases, and when we consider the number of possible varieties in the shape and position of the uterus, it is evident that the number of possible complications is almost endless. Thus, to say that a particular patient is affected with an ante flexion of the uterus is to convey very little actual information: the case may be trifling in importance, or it may be serious; it may be safely left to itself, or it may require much and skilful attention to be remedied. We should require to know the history of the case, the precise degree of the ante flexion, the precise position of the uterus as a whole in the pelvis, the physical condition of the tissues of the uterus, the size and thickness of its walls; and, in forming a due estimate of the case, the general condition and activity of the nutritive process would form a very essential element.



**FREQUENCY OF DISTORTIONS AND DISPLACEMENTS OF THE UTERUS.**  
—It is a matter of considerable interest to determine the actual frequency with which these disorders of the uterus are met with in practice. The following is a contribution on this subject from my own experience:—

During a period of a little over four years, from August 1865 to December 1869, I kept notes of all cases treated in my out-patients' room at University College Hospital. The number of recorded cases of all kinds is 1,205.<sup>1</sup> Of these, 714 were cases where the patients presented uterine symptoms. Of these 714, 620 were subjected to an internal examination, and the diagnosis thus arrived at. In 94 no such examination was made.

Of the 620 examined cases, 61, or 9·8 per cent., were set down as suffering from absence or malformation of uterus, or various symptomatic affections only.

In 182, or 29·3 per cent., the patients were found to be suffering from fibroid tumour, cancer, or pelvic cellulitis.

In 377, or 60·8 per cent., the shape of the uterus was materially changed or its position markedly changed.

These 377 cases are further resolved into —

Flexions	{ Retroflexions, 112 Anteflexions, 184 }	296	} 377
Prolapses	. . . . .	81	

Further, 'the flexion cases were very generally attended with textural alterations of the uterus, congestive hypertrophy, &c., which, in accordance with present views, would be termed congestion; but it is precisely in those cases where the symptoms of irritation were most marked that severe and well-established flexions were found to exist.'

It thus appears that in 60·8 per cent. of those hospital out-patient cases which presented uterine symptoms of sufficient importance to suggest the necessity for making an examination, marked physical changes in the form, shape, or position of the uterus were detected.

The total number of cases recorded was, as I have before stated, 1,205, of which 714 are accounted for in the above analysis. There remain 491 cases, which include many of syphilis or gonorrhœa, pregnancy, general debility, overlactation, diseases of the bladder or external generative organs, phlegmasia dolens, tumours or in-

<sup>1</sup> These data, the results of hospital experience, were first published in the last edition of this work, 1872.

Examinations of the ovaries, cases of doubtful diagnosis, cases of disease of other than the generative organs, &c.

The foregoing statistics give the proportion in which distortions and displacements are liable to be observed in the case of Hospital patients, in London at least. Turning from these results of public hospital practice it is more difficult to arrive at results which will command attention as to the frequency of uterine distortions and displacements in the class of patients ordinarily denominated 'private' patients and the majority of which belong to the better classes of society. I have, however, extracted the following particulars relating to six years of recent private practice with the view of arriving at some conclusion on the question as to the relative frequency of various forms of uterine disease.

It must be premised that the six years' statistics given below are imperfect in one way, for they do not include a number of cases, particularly those seen in consultation practice away from my own residence, which have unavoidably escaped being recorded.

The total recorded cases in six years (1,140) include —

Cancer, uterine or vaginal . . . . .	27
. Fibroid tumour and polypus . . . . .	60
Diagnosis of pregnancy . . . . .	33
Flexions, and displacements of the uterus (see explanatory statement below) . . . . .	70
Miscellaneous, including	
<i>a.</i> Diseases of other than sexual organs . . . . .	311
<i>b.</i> Cases of disease of sexual organs, no physical examination . . . . .	
<i>c.</i> Various diseases of sexual organs not included in foregoing list . . . . .	

1140

It is stated in the foregoing list that 709 patients were affected with flexions or displacements of the uterus. This statement requires a more complete explanation. There were probably several other patients who would have been found to be suffering from these affections had an examination been made. The 709 cases are put together because they evidently belonged to one class. The symptoms were so severe or troublesome that an examination was imperative, and the result of the investigation was to show that the symptoms were dependent on the uterus. In a few of the cases where it is expressly stated the uterus was found normal, the cases are still left in this category, because the symptoms observed were such as are ordinarily present in cases of flexion

or displacement, and no disease of any other organ was found to account for them.

Flexions (ante- 488, retro- 180)	668
Uterus prolapsed without flexion	6
Uterus simply too large or too long	11
Hypertrophic cervical elongation	3
Uterus normal	4
Cases of alternate ante- and retroflexion	2
Lateriflexion	3
Flexions combined with pregnancy	12
<hr/>	
Total	709

Under the head 'Miscellaneous' are included various slight cases of disorder of the sexual organs, in some of which examination was made, and in many not; it includes also cases diagnosed to be disease of the ovaries by physical examination or otherwise. It also includes some few cases of patients who were not found to be affected with diseases of the sexual organs at all. The number of cases of the latter class is not, however, enough to vitiate any numerical conclusion to which the figures would appear to lead.

Speaking generally of the foregoing statistics, they may be summed up as follows:—

Of 1,100 patients believing themselves to be affected with some disorder referable to the sexual organs, or believed to be so affected by the practitioner under whose care they had been, after a careful investigation of the case and from the results of physical examination, about 700 were found to be suffering from well-marked flexion or displacement of the uterus; 87 were affected with cancer or fibroid tumour; there remain rather over 300 cases accounted for under various heads in the foregoing list.

The statistics of my own private practice thus show that in about 70 per cent. of patients applying for advice, flexions and displacements existed, and, in my judgment, proved to be the essential cause of the sufferings of which the patients complained. When it is stated that flexions and displacements existed in this large percentage of cases, it is not to be inferred that these constituted the sole maladies present. Few of these cases were without complications of various kinds. But almost the whole of these cases were really severe ones, none being included but those in which the patient was suffering or had suffered much, and none in which the diagnosis was at all doubtful.



## CHAPTER XV.

## DISPLACEMENTS AND DISTORTIONS OF THE UTERUS (FLEXIONS).

## 3. ETIOLOGY.

ETIOLOGY.—Statistics of Cases in Private Practice, showing Frequency of Mechanical or Physical Injury or Accident.

CLASSIFICATION OF CAUSES.—1. Predisposing: Undue Softness of the Uterus from Malnutrition (Chronic Starvation)—from Sub-involution—Physical Prostration—Rupture of Perinæum—Previous Pregnancy. 2. Exciting: Accidents—Over-exercise—Special Exercises—Special Occupations—Marriage. 3. General Causes.

For some few years past I have taken particular pains to ascertain the cause of the displacement or distortion in cases of this kind coming under my notice. In a considerable number of the cases I found it possible to trace in the previous history particular causes explanatory of the occurrence. Due care has been taken to guard as carefully as possible against sources of fallacy in tracing the relation of the cause and effect.

It is remarkable how frequently the particular cause of the displacement or distortion has proved to be some external mechanical physical injury. The following data illustrates this part of the subject.

I have selected from records of cases collected during six years 340 cases in which the patient was single, or, if married, was sterile, and in which the uterus was affected with ante- or retro-flexion. I have purposely excluded for the moment cases of patients who had had children, as in such cases child-birth, or the sequelæ of child-bed, introduce disturbing considerations.

It thus appears that in  $\frac{149}{340}$ , or 43 per cent., of cases of flexion in single women, or, if married, sterile, the cause was distinctly traced to some one of the above-mentioned agencies.

It is right to state that in three of the above cases the patient had had a miscarriage, accident or strain having produced apparently the miscarriage as well as the displacement, or, to speak more correctly, the accident or strain was responsible both for the displacement and the miscarriage.

*340 Cases of Single or Sterile Patients Affected with Uterine Flexions.*

The flexion distinctly traced to	Retro- flexions	Ante- flexions	Total
Strains, lifting, carrying, nursing, standing, dancing, gymnastics, croquet, swimming, &c..	13	49	62
Falls, or other accidents	11	18	29
Horse exercise	6	9	15
Over-walking	8	7	15
Organ or harmonium-playing	1	3	4
Long railway journey	1	1	2
Retention of urine in railway journey	1	1	2
Fright	0	1	1
Sea sickness (three months voyage)	0	1	1
Measles	1	0	1
Scarlet fever or typhoid fever	2	11	13
Menstruation checked by cold	0	3	3
Menstruation checked by sea bathing	0	1	1
	44 <sup>1</sup>	105 <sup>2</sup>	149

<sup>1</sup> Selected from 83 cases }  
<sup>2</sup> Selected from 257 cases } = 340

Strains resulting from efforts in lifting, nursing, &c., constituted a very common cause—62 out of 149 cases. They most commonly produce the effect in patients who undertake such exertions without proper training or strength. Nursing and lifting sick relatives appear to be very dangerous. Lifting, or occupations involving much standing, were responsible in many cases. ‘Stretching up to a cord,’ ‘drawing the cork of a bottle,’ ‘carrying a child,’ ‘strain at archery,’ ‘moving furniture,’ ‘rowing,’ ‘use of sewing-machine,’ ‘lifting a patient from the ground,’ ‘lifting wash-stand,’ were the causes traced in other instances. Unnecessary gymnastic feats, excessive standing at croquet, one or two cases traceable to excessive swimming, may also be mentioned.

‘Falls,’ or other accidents, include many cases in the tabular list above given. ‘A complete somersault down a flight of steps,’ ‘thrown from a carriage,’ ‘fall from a carriage,’ ‘thrown from a horse,’ ‘fall from a horse,’ falls on the back, on the ground, down stairs, &c.—under the foregoing heads I find cases of retroflexion recorded. ‘Jump from a carriage,’ ‘slipped down flight of stairs,’ ‘fall from back of dog-cart,’ ‘fall from horse,’ ‘slipped down stairs,’ ‘fall down steps,’ ‘jump from a horse,’ ‘fall from a horse and horse rolled over her’—under these heads cases of antelexion could be quoted.

Horse exercise was clearly traced as a cause in several cases. In one case it indirectly led to displacement owing to prolonged retention of urine. In weakly young women, imperfectly trained to it, horse exercise appears decidedly injurious.

‘Over-walking’ includes several cases. ‘Long mountain walks,’ ‘daily long walks,’ and ‘long walks to catch a train,’ are causes traced in some retroflexion cases. ‘Long walks up-hill,’ ‘very fatiguing walk,’ ‘walk during menstrual period,’ &c., in certain cases of antelexion. Organ or harmonium playing was found injurious in a few cases. Retention of urine during long railway journey, fright, &c.—these cases require no particular mention.

There were fourteen cases in which the cause assigned above is measles, scarlet fever, or typhoid fever. The reason for introducing these cases is, that the details on investigation proved that the uterine affection had occurred from ordinary walking during convalescence from the fever. The conclusion formed was that the uterus, enfeebled in common with the other organs of the body, gave way under ordinary exertion, and the preceding fever was thus really responsible for the resulting uterine affection.

The causes of uterine distortions and displacements may be divided into three classes—predisposing, exciting, and general.

*Predisposing :—*

Undue softness of the uterus—

From mal-nutrition (chronic starvation).

From sub-involution following pregnancy.

Physical general prostration and weakness, as from fever, &c.

Rupture of perinæum.

Previous pregnancy.

*Exciting :—*

Accidents—

Strains.

Falls.

Railway and carriage accidents.

Over-exercise—

Long walks or drives.

Excessive exercise during menstruation.

„ „ pregnancy.

Exercise too soon after confinement.

Special exercises—

Horse exercise.

Gymnastics (inappropriate or injudiciously selected).

Croquet, lawn-tennis, &c. (in excess).

Special occupations—

Requiring much standing, as counter work.

Requiring carrying and lifting, as nursing.



Washing.

Use of sewing-machine.

Straining in defæcation, &c.

Marriage.

*General*.—See remarks later on.

Of the predisposing causes, *undue softness of the uterus* is perhaps the most important. It may be due to mal-nutrition either in a single woman, or in one who has borne children. This condition of the uterus has been already described (p. 66). *General prostration and weakness*, as from the effects of fever, appear to be powerful predisposing causes (see list of cases enumerated at p. 144). Clinical facts show that uterine flexions are liable to be initiated by exercise or movement taken shortly after prostration from fevers. *Rupture of the perinæum* is a special predisposing cause: the support of the lower part of the vaginal canal is taken away, and this is a powerful predisposition to displacement of the uterus and to flexion of the organ.

*Previous pregnancy* predisposes to flexion in several ways. The influence of rupture of the perinæum (if it exist) has already been alluded to. But in other ways a predisposition may exist. Thus, if the uterus is left in a state of sub-involution, the mere weight of the organ tends to produce flexion. If the organ remains softer than usual, as well as in a state of sub-involution, the predisposition will be greater. Again, the loosening of the attachments of the uterus is frequently great during pregnancy and labour, and even if no lesion is discoverable, the normal fixation of the uterus may have been lost and a predisposition to flexion created.

Repeated pregnancy in women badly nourished has a tendency to weaken the uterus very much. The uterus has little rest—it has scarcely time to recover from the effect of one pregnancy before another occurs. In the end the uterus becomes flexed, the flexion is confirmed, and either abortions or sterility (secondary) result.

*Exciting causes of flexions*.—Reference may be made in the first place to the statistics given at page 144 of cases recorded in my own case-books; but it will be necessary to discuss the several exciting causes more in detail.

Accidents, including *strains, falls*, and *railway or carriage accidents*, are very important. It has hardly as yet come to be recognised as a fact that the uterus may be very seriously displaced and injured by severe accidents. The number of cases of

severe injury to the uterus from these causes recorded in my case-books is considerable. The nature of the injury is generally, as experience has informed me, not understood at the time of the accident: the patient feels ill, generally no bones are broken, there is a severe shock, the effects of which last a few hours or a few days or longer, and gradually the patient loses the pain and no further notice is taken of it. But later on it is discovered that the patient is more or less completely incapacitated, and careful examination reveals the fact that the uterus is displaced and distorted, investigation of the facts conclusively showing that the discomfort or incapacity date from a certain accident. One of the first cases of the kind which came under my notice was that of a young lady who, travelling by train, had been rolled down a railway embankment, and had become affected with acute retroflexion of the uterus as the result. The record of many cases of an analogous kind which is in my possession, gives unmistakable proof of the effect of accidents in producing such displacements and distortions.

The effect of a severe concussion on the uterus varies in different cases, and it varies according as it is accompanied or not by a severe strain. It is not uncommon for the concussion and the strain to come together. There is the fall, and the muscular effort to avoid the fall or accident. In the latter case the displacement of the uterus is likely to be greater. The facts in my possession show that the uterus may be forcibly driven downwards to the floor of the pelvis, or to the back part of the pelvis—into one corner of it as it were—or that it may be actually driven out of the vagina—[at least I have known of one case of the latter kind in a patient who had had a child, and who, while in the standing position, slipped from the table on which she was standing to the floor]. More generally the uterus is not only driven downwards to the floor of the pelvis, but it is bent backwards or forwards, very acutely, at the same time. It was believed by Dr. Squarey that rupture of the uterine fibressometimes occurs in the suddenly occurring acute flexion cases, and I consider it quite possible that it is so. At all events, it is not uncommon for some blood to escape from the vagina after such accidents. The effect of the blow or concussion will vary probably according to the position of the patient at the time, and the condition of the uterus, but when the case is investigated it is found that the uterus remains on the floor of the pelvis, or in one corner of it, or that it is anteflexed or retroflexed. In some exceptional cases the organ is quite low

down, the body of the uterus being turned neither forwards or backwards as the result of the accident or blow received. It is important to note that when bones are broken or other notable injuries received, the internal injury to the uterus may be hidden or escape notice. Two cases of this kind occur to me to mention. One was that of a lady who fell and injured the sacrum, was laid up by that injury for some time, then went about and rode on horseback much, subsequently becoming paraplegic. The paraplegia was naturally set down to the spinal injury, but it proved to be due to a retroflexion of the uterus, and the patient was completely cured by restoration of the shape of the uterus. Another was that of a young lady who fell and broke her arm: some months after that obstinate sickness attracted attention, and it was found that the uterus had been violently displaced and pushed into one of the posterior corners of the pelvis.

Violent straining may produce severe flexion. Of this class of case may be mentioned one in which the patient, quite unaccustomed to such an exertion, lifted a helpless invalid from the floor, who had suddenly rolled out of his chair, the result being severe flexion. Another, that of a young lady, who in a spirit of bravado carried a very heavy cheese across the room, and became forthwith an invalid from severe flexion of the uterus.

Long walks may produce at once acute flexion, or, continued from day to day, may slowly give rise to flexion. Very long walks are certainly dangerous to those unaccustomed to them. Young recently married women, untrained and unfit for such continuous exertion, often inflict very serious injury upon themselves by walking about all day during the honeymoon. Long mountain walks should not be undertaken by young women unless trained for the purpose and in robust health; and if a predisposition to flexion exists, much harm may be done by them. 'A long walk of ten miles to catch a train' produced severe retroflexion. Long walks often inflict serious injury on young women at school who do not happen to be 'strong,' and who are therefore predisposed to suffer from flexion.

It appears that long walks are more dangerous if undertaken during the menstrual period, no doubt because the uterus is at that time heavier, larger, and more vascular, and therefore more liable to become displaced. Long walks are not uncommonly the cause of abortion during the second or third month; the uterus becoming displaced or flexed, the abortion is thus produced. Another important class of cases are those in which walking in



excess is undertaken too soon after labour, while the uterus is still heavy, and in a state of sub-involution.

Horse exercise may cause flexion of the uterus. It may be produced suddenly and at once, or more gradually. It is not so liable to happen if the individual be strong and properly trained to it; but evidence that could be adduced seems to show that it is a kind of exercise not free from liability to produce serious uterine mischief, even when judiciously managed. The evidence shows that the uterus is liable to be pushed downwards on the floor of the pelvis, and generally very decidedly flexed backwards or forwards. If there be no particular predisposition to flexion horse exercise may do no harm, but it is never certain that it will not.

Some few cases of severe flexion were undoubtedly traced to too severe gymnastic exercises. In two cases severe flexions were produced by jumping down from a considerable height; in one severe and most troublesome retroflexion was produced by the feat of raising the body from the horizontal position without the use of the arms. In two cases rowing was distinctly traced as the cause.

Dr. Aveling, who has published a valuable work 'On the Influence of Posture on the Health of Women,' considers that the erect posture has much influence in inducing disease, gravitation giving rise to vascularity. He considers the sitting posture on a chair as unnatural and injurious, and would prefer the sitting posture on the floor. It is in accordance also with my experience that the prolonged ordinary sitting posture is injurious, and I have seen many cases where this posture could not be borne at all. But I do not know whether sitting on the floor would or would not prove equally inconvenient.

Lawn-tennis, badminton, and croquet, when carried to excess, in the case of individuals predisposed to flexion, are not free from danger, though doubtless innocent enough under other circumstances.

The next class of causes includes special occupations requiring much standing. Young women standing for many hours consecutively at the counter become frequently affected with flexion of the uterus, more rapidly in proportion as they are predisposed to its occurrence. In hospital practice such cases not uncommonly present themselves. Dr. Edis has lately done good service in calling public attention to the injurious effects resulting from such over-standing: the production of severe flexion of the uterus is certainly one of them.

The occupation of nursing, involving, as it does, necessity, occasionally at least, for lifting invalids or for standing many hours together, is liable to cause severe flexions in the case of young women who are not strong and properly trained to the work. Numerous instances have fallen under my notice in which permanent ill-health or incapacity, due to a severe uterine flexion produced while nursing a sick relative, has been observed.

Laundry work is perhaps one of the most trying to the attachments and connections of the uterus. It is liable to produce severe flexion, though it is more commonly the case that actual prolapsus is produced by excessive labour of this kind. The use of the sewing-machine, playing the harmonium, or organ, are other occupations requiring mention. Some severe uterine flexions have been produced by these occupations in cases which have come under my notice.

Straining in defæcation is both a consequence and a cause of uterine flexion. Nothing is more common than to meet with cases in which uterine displacement and flexion give rise to constipation. The effort required to relieve the bowel increases the existing flexion. This is more particularly the case in retroflexion. I have seen a case of retroflexion in which the fundus uteri was driven downwards by the straining effort into the embraces of the sphincter ani, most effectively blocking up the canal like a ball-valve.

Marriage must be mentioned among the causes of flexion. In cases where there is a predisposition to flexion, and where the uterus is soft and weak, intercourse has often a very prejudicial effect; and marriage in such cases may lead to troublesome disease of the uterus in consequence of the mechanical disturbing influence thereby brought to bear upon the uterus.

Under the head of *general* causes of flexion must be included such as are not included in the foregoing classes. It seems probable that were the true history of every individual case known the cause would be evident enough. I have found it possible to assign a cause in a very large percentage of the cases which have come under my notice, and have observed frequently that the cause has been discovered some time after the patient has been under treatment. Slight accidents, even severe ones, are often passed unnoticed and therefore forgotten. In many cases, no doubt, the flexion occurs gradually only; the cause in operation and tending to produce it is not severe in its action, but produces after a time a perceptible effect by mere persistence of slow attack.

There is generally in such cases a slight predisposition to begin with; and although the exertion or exercise taken by the patient is nothing out of the ordinary, it is more than can be endured; and in the end, after many years perhaps, the uterus is found affected with a severe form of flexion. Young women, imperfectly fed, having no stamina to begin with, and called upon to undertake duties involving standing or walking or other exertion—governesses, for instance, called upon to daily take long walks with their more robust pupils—offer numerous instances of the truth of these remarks.



## CHAPTER XVI.

## DISPLACEMENTS AND DISTORTIONS OF THE UTERUS (FLEXIONS).

## 4. CLASSIFICATION, AND PATHOLOGICAL EFFECTS.

CLASSIFICATION OF FLEXIONS AND CONSEQUENT DISPLACEMENTS—Pathological Effects.

1. The Seat of the Flexion. 2. Variations in the Condition of the Tissues of the Uterus. 3. Various Kinds of Flexion or Version (Rotation). 4. Varieties in Position of Uterus as a whole.

PATHOLOGICAL EFFECTS OF FLEXIONS, Relation to Congestion, Relation to Hypertrophy of the Uterus—Contraction of the Cervical Canal—Changes in the Uterus, Atrophy, Compression at the Seat of the Bend, Sensitiveness at the latter Spot—Persistence of the Distorted Shape of the Uterus—Changes at the Os Uteri.

ONE principal cause of disagreement in regard to flexion of the uterus is want of appreciation of the fact that flexions vary so much in character in different cases. To overcome this initial difficulty it is necessary to attempt some classification of the varieties observed.

CLASSIFICATION OF FLEXIONS OF THE UTERUS AND CONSEQUENT  
DISPLACEMENTS.

1. *The Seat of the Bend.*—The most common situation is the position of the internal os uteri, or about midway between the os uteri externum and the top of the fundus. Dr. Emmet, speaking particularly of anteflexions, adopts a peculiar classification. He speaks of (1) flexions of the cervix below the vaginal junction, and of (2) flexion of the body of the uterus. He regards the first as congenital, the second as liable to occur after puberty. I do not share his view as to the congenital nature of the first variety, but it is the fact that the greater part of the bend is low down in many cases. In most cases the bend affects a considerable part of the uterine canal, involving the upper part of the cervix as well as the lower part of the body of the uterus.

2. *Variation in the Condition of the Tissues of the Uterus* associated with the flexion. This variation is very important in the classification of flexions.

a. The uterus may be excessively soft, hardly more resistant than wet brown paper. Reduction of the flexion easy, but recurrence not observed perhaps until patient has moved about again.

b. Moderately soft, hypertrophied as regards the fundus and cervix, congested and heavy. Reduction easy, recurrence on withdrawal of sound not immediate.

c. Normally hard, but hypertrophied as regards the fundus and cervix—one or both. Reduction difficult, recurrence on withdrawal of sound immediate.

d. Excessively hard, the os perhaps much hypertrophied, lips everted and congested; much hypertrophy of body of uterus also. Reduction very difficult, or only to be effected by sustained effort.

e. Variations in the thickness of the uterine walls, especially at the seat of the flexion.

### 3. *Various Kinds of Flexion and Version.*—

a. Anteversion (anterior rotation) pure and simple.

b. Anteflexion, first degree

c. „ second degree

d. „ third degree

} with varying degrees  
of anterior rotation.

e. Retroversion (posterior rotation) pure and simple.

f. Retroflexion, first degree

g. „ second degree

h. „ third degree

} with varying degrees  
of posterior rotation.

j. Lateriflexion, right or left.

k. Anteflexion with subsequent posterior rotation, the uterus yet preserving its anterior flexion.

Oscillating, or alternate ante- and retroflexion.

There are more minute shades of difference observable than those above indicated, and the differences existing between first, second, and third degrees of flexion may be not easy precisely to define, but in practice an approximate definition of the degree of flexion present is generally quite practicable.

### 4. *Variation in Position of Uterus as a whole.*—

a. Uterus pushed backwards on the floor of the pelvis, with or without flexion of the same. (Not common.)

*b.* Uterus prolapsed, more or less completely in a retroflexed state. (This condition more properly comes under the head of 'Prolapsus.')

*c.* Uterus higher than usual in the pelvis, but in a flexed condition. (Very rare.)

*d.* Uterus flexed in various modes and degrees (see preceding list), and lying lower than usual in the pelvis. (This is the most common condition.)

I propose in the next place to call attention to some of the pathological effects of flexions of the uterus. Fig. 34 represents the comparative thickness of the walls of the uterus, as shown by a section

FIG. 34.

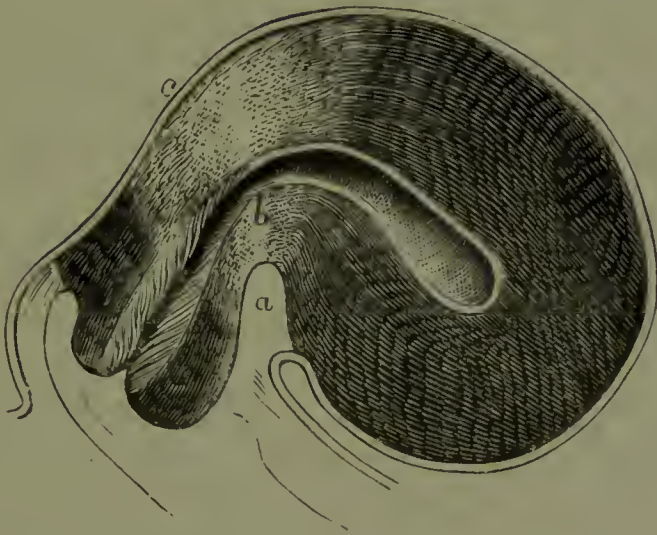


through it vertically and from before backwards. What would be the effect upon the uterus of a bending of the organ? It would obviously be to produce a compression of the tissues of the organ at the seat of the bend (see fig. 35). Such compression is in the nature of things inevitable. The distance between the external and the internal wall will, in process of time, though probably not immediately, be diminished. The diminution of the thickness of the walls of the uterus will take place to a greater extent on the concave side of the bend. There will be a diminution of the diameter at the position of the flexion (*a*, *b*, *c*), and the general result will be that



there is a compressing force exercised at the middle of the uterus upon the tissue of the organ (see fig. 35). The effects of this compression in retarding the circulation in the uterus, and in producing acute *congestion* of the organ, have already been discussed at p. 77 in connection with the subject of congestion of the uterus. Its effects in producing a 'strangulation' of the uterus have been also described in the same place. It is, I believe, an inevitable result that the circulation in the upper part of the uterus should be in a considerable degree interfered with when compression is thus exercised upon the uterus and its vessels, the result being that the upper part of the uterus comes in the end to contain a larger portion of blood than usual. It becomes unduly heavy and larger. It becomes not only congested, but likewise unduly sensitive, to an extraordinary degree in some cases ;

FIG. 35.



and the congestion and undue sensitiveness constitute the most important of the phenomena, to a less degree in anteflexion than in retroflexion, but even in the former cases to a marked degree in many instances. This compression in the middle of the uterus has various effects in different cases. After a time, if the flexion is not very acute in degree, the uterus may become habituated to it, and flexion becomes after a certain interval less embarrassing to the uterus. The uterus acquires a certain toleration of this condition. But when it does not acquire the toleration, or when, as frequently happens, the malady increases, we have an opportunity of witnessing the following effects: the fundus uteri is found sensitive, swollen, and tender to a degree; the patient is in a state of discomfort which hardly any physical condition of other

organs of the body can exceed. The physical compression of the uterus is a phenomenon to which I attach great importance as a feature in the natural history of these cases. An important effect of the mechanical interference with the circulation in the uterus occurring in connection with flexion, is that produced upon the menstrual functions. As will be presently shown, one effect of flexion is to narrow the uterine outlet so that the menstrual products do not so readily escape. But the chronic congestion due to flexion alters the menstrual discharge in another way. Sometimes the quantity is enormously increased. In other cases it is as much diminished, is scanty and very trifling in amount. It is not uncommon to find cases in single women where menstruation has for some time been profuse, and then has become altogether too scanty. These results are due—certainly I have found them due in many cases—apparently to the mechanical interference with the general uterine circulation which severe flexion is capable of producing.

The next effect to be mentioned is *hypertrophy of the uterus*, general enlargement of the organ, the result of long-continued congestion of the part, leading to the deposition of material in the interstices of the organ, and having the result of increasing its size. In the chapter on 'Congestion of the Uterus,' it has been shown that the uterus is an organ which exhibits a tendency to hypertrophy in a remarkable degree: the effect of a long-continued congestion of the uterus is to produce *hypertrophy* of those portions which are in a congested condition. Hypertrophy affects not only the fundus of the uterus itself, but the parts round the os uteri, where, in fact, the effects are so considerable as to have had the effect, in past years, of attracting a too-exclusive attention to this part of the organ. It is not uncommon to find that the lips of the os uteri are very much thickened, that they are very much larger than usual, and that the thickness of the walls of the cervix uteri have increased to double the usual size. In fact, there is a considerable hypertrophy of the whole uterus present under these circumstances, not only of the cervix, but also of the body of the uterus. Dr. John Williams considers that the hypertrophy observed in cases of flexion is analogous to the hypertrophy of the heart due to stenosis of the orifices. In connection with the subject of hypertrophy of the uterus, it is necessary to consider the influence of defective involution of the uterus after delivery, in cases where the patient has had children. The influence of this defective involution is often prolonged.

When we have the two things associated together—defective involution and flexion, these two circumstances co-operating—it is precisely under such circumstances that we meet with a marked state of hypertrophy of the organ. Flexion alone is sufficient, but, when co-operating with defective involution of the organ, the hypertrophy is most marked. Further, associated with this hypertrophy of the cervix of the uterus, we generally meet with the following conditions:—A very great increase of secretion from the cervical and other glands, and other changes in the mucous membrane which were formerly considered to be ulcerative in character.

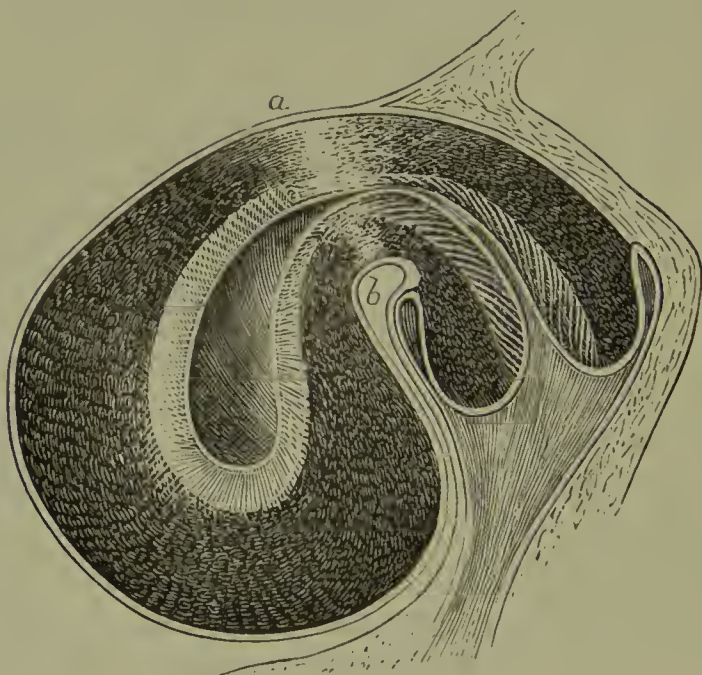
*Descent of the Uterus as a whole.*—A common effect of flexion is descent of the uterus as a whole. This is one of the most important effects, clinically, which have to be mentioned. This is the starting-point, in many cases, of prolapsus of the uterus. It is the first step in the process in a considerable number of cases. When the uterus is flexed, or at all events when it remains flexed, it becomes from that moment a source of irritation to the patient; the patient has difficulty in evacuating the contents of the rectum, and the functions of the bladder are interfered with, though in a somewhat different manner; the general result is, that the patient has frequently to use straining efforts either at stool or in micturition. The effect of this straining is to propel the uterus downwards in the pelvis; and when this process has been going on for weeks and for months, or for years, the result is eventually that the uterus, as a whole, comes to occupy a position in the pelvis which is much lower than it should be. In making an examination, we find the os uteri quite close to the vaginal aperture in many instances; or, if we do not find it there, we find it dislocated in a corresponding manner backwards, and very low down. I believe this is the mechanism of the first stage of prolapsus of the uterus in nine cases out of ten.

The mechanical results observed are very interesting, and will be more particularly described in the chapter on ‘Prolapsus.’

*Compression and contraction of the Cervical Canal*, leading to the interior of the uterus, is another very important effect of flexion. It is necessary that this canal should be in a patent condition, in order that menstruation may occur easily, and in order that impregnation may take place. Contraction of the cervical canal is one of the common causes of dysmenorrhœa and of sterility, and is, accord-



ing to my experience and observation, a direct and almost necessary effect of flexion of the uterus (see chapters on 'Anteflexion' and 'Dysmenorrhœa'). Other conditions may produce contraction of the canal, but the percentage of cases of contraction due to other causes is not more than from one to three or four per cent.—I should say, not more than one per cent. The mechanism by which flexion obstructs is obvious. If we take an ordinary-sized jargonelle pear, and scoop a little passage into its middle about an eighth of an inch in diameter, beginning at the insertion of the stem, that will give a tolerably exact representation of the size of the canal at the place where it opens into the uterus proper. At this point, which is the internal os uteri, the canal has a diameter, under ordinary

FIG. 36.<sup>1</sup>

circumstances, of one-eighth of an inch; the canal is larger below that point. But as the strength of a chain is that of its weakest link, so the size of a canal is that of its smallest portion, when we come to consider how far it is available for the passage of fluid. Regarding the thickness of the walls, the very great thickness in proportion to the size of the cervical canal, it may be conceived

<sup>1</sup> Fig. 36 represents a case of long-standing retroflexion of the uterus. For purposes of illustration I have, in teaching, used a model of the uterus on a large scale, constructed from sponge. When this model uterus is acutely bent, the compression thereby produced at the seat of the bend is very obvious. A marked condensation occurs at this spot.

what must happen when that organ is bent at an acute angle. One result only is possible, that very considerable narrowing of the canal will occur (see figs. 35 and 36). This is the explanation of dysmenorrhœa, and the reason why it occurs so frequently in cases of flexion. In cases where the flexion takes place very gradually, where it has been advancing over a period of many years, the narrowing may be less obvious, owing to the gradual arching of the canal; but when the flexion is produced suddenly and acutely, it is often very decided.

In some cases there is a real stricture at or near the internal os uteri, and the canal at the place in question is really narrow, and the sound only passes through the narrower part with a kind of jerk; but in many cases there is only what may be termed a potential stricture. The canal is narrowed and obstructed by the forcible coaptation of the opposite walls; thus the passage of fluids through it is obstructed, although the sound, if ingeniously introduced, may be easily made to traverse the apparently narrowed part of the canal. There have been very great differences of opinion as to the frequency of stricture of the internal os, but, according to my experience, actual stricture of the internal os is not very common; while, on the other hand, apparent obstruction is commonly observed in cases of acute flexion. The condition of the uterus as regards hardness and softness is very important in the true estimation of these cases, for when the uterus is very soft the sound may pass in quite readily if held rather stiffly, and I have known cases where severe flexions have been overlooked, apparently from this circumstance of the sound encountering no obstruction and thus entering in what seemed to be the normal manner. The fact is, that in such cases the sound unbent the uterus as it entered.

The uterine canal being more or less impermeable in consequence of the flexion, various other effects result: such as the retention of fluid in utero, dysmenorrhœa from retention, leucorrhœa from retention, and sterility. Further remarks on these subjects will be found in the several chapters relating to them.

The effect on the *walls of the uterus at the seat of the flexion*.—At the place where the flexion occurs, generally about the middle of the uterus, certain effects and changes are produced. It appears that one of the first effects of the flexion is to give rise to a swelling of the tissues of the uterus on the concave side of the bend, this swelling affecting the uterine tissue and the plexus of vessels just outside the uterus; there is one specimen in

existence (in the Middlesex Hospital Museum) in which a section shows an increase of the thickness of the wall of the uterus on the concave side of the flexion. In some cases of ante flexion I have observed the presence of a sort of transverse ridge or elevation projecting on the concave aspect of the uterus, and felt by the finger through the roof of the vagina, due, no doubt, to the swelling of the tissues as above described. This is a condition of things which is, however, not generally met with when the flexion has existed any considerable time. After two or three years (in cases of acute flexion) there always occurs, according to my experience, an atrophy of the uterine wall on the concave side of the bend, and a consequent thinning of the wall at that spot. I have found it apparently hardly thicker than a piece of cartridge-paper at this spot. This condition of the uterine wall was some years ago described by Virchow. It appears to be a physical result of the compression or squeezing of the uterus itself at this situation. And it is the fact, according to my experience, that it is not observed unless the flexion is severe enough in degree to cause such a compression. Accompanying atrophy of the uterine wall as here described, there often occurs a considerable degree of hardening or condensation of the tissues. Probably the condensation is first in order of occurrence, the atrophy occurring later on. In cases where this hardening occurs, the uterine sound, on passing the narrowed part, encounters considerable resistance, and passes through and beyond it with a kind of jerk very noticeable and decided. In some cases the compressed tissues are actually softened.

But there are further features of great importance to be noted. The compression to which the uterine tissues are subjected at the seat of the bend have the result, in many cases, of producing an extreme sensitiveness to the touch at the point in question. This is evident on using the sound. Thus, it will be found that the sound enters the cervical canal easily and gives no pain, but when it touches the uterine canal at about the internal os, severe pain is felt and evidence given of the existence of great sensitiveness. Passing beyond this point into the uterine cavity, it is found that the pain ceases. This observation I have made in several such cases. It is principally observable in those cases where the flexion is of long standing and the uterus has hardened and set in its abnormal shape. The conclusion which I have formed as to such cases is, that the uterine nerves distributed to the tissues which are the seat of the compression are irritated by it, and that this is the explanation of the tenderness to the touch. The remarkable



immunity from tenderness above and below the part affected, and its precise agreement in position with that of the bend, have led me to adopt the above explanation. This conclusion is of great interest in reference to various important questions as to the nervous and hysterical affections to which women are liable.

Slight bending of the uterus is not liable to produce atrophy of the walls at the seat of flexion. The atrophy occurs to the greatest degree in cases where the flexion is acute, has been of long standing, and where the uterus originally was of the very soft flaccid variety.

The effect of the atrophic change in the uterine walls at the seat of the bend is, that in long-standing cases of originally *acute* flexion, the uterus loses its stem as a means of support; and although it may be easy to restore the proper uterine outline, it is by no means easy to preserve that outline, for the moment the sound is withdrawn the fundus falls forwards or backwards as the case may be. The chronicity of severe flexion of the uterus appears to be mainly connected with the presence of these alterations in the thickness of the wall at the seat of the flexion; but not entirely so, for many cases are very chronic and severe where no atrophy has occurred.

This leads me to speak of the persistency of the distorted shape in cases of flexion. This persistency varies exceedingly in different cases. This variation appears to depend on the following circumstances:—If the flexion be severe, the patient in a good state of health at the time, and nothing be done to relieve the flexion, the tendency will be for the uterus to become hardened, literally, in its distorted shape. This kind of result is observed when the flexion is the result of a severe accident, the individual being in a state of health at the time. But when the accident, or strain, or other cause, produces a severe flexion in a patient who is out of health, and in a feeble state, the uterus remains soft, becomes, perhaps, much affected with pain or congestion, but does not become firm and hard, and the uterus may be found flexible even after the lapse of a year or so. Thus differences are liable to present themselves. I have found the uterus quite easily bent into its proper shape by means of the sound three or four years after the occurrence of the flexion, as proved by the history and acts of the case. Only, in fact, when the nutrition of the body has attained a high level does the uterus become firm.

*Changes at the Os Uteri.*—Another effect often observed in chronic flexion is eversion of the cervical canal, so that the os uteri

presents a raw, vascular surface. Such a condition is particularly met with (1) in cases of single women, where the uterus has become hypertrophied, softened, and the os considerably increased in size; or (2) in cases where the patient has borne children, and the aperture of the os is wide from side to side. The eversion most affects the posterior wall of the cervical canal in cases of retroflexion, and the anterior wall of the canal in cases of ante flexion. If the cervix has been lacerated longitudinally, and slit up on each side, the degree of eversion—ectropion—is very great. Such laceration of the cervix is not very uncommon, as has been pointed out by Dr. Emmet of New York. Eversion may, however, occur quite apart from laceration of the cervix. The effect of the eversion is, that the delicate lining of the cervix is continually undergoing friction against the vaginal floor. Hence various irritations and other secondary effects.

## CHAPTER XVII.

## DISPLACEMENTS AND DISTORTIONS OF THE UTERUS (FLEXIONS).

## 5. SYMPTOMS, INCLUDING STERILITY AND ABORTIONS.

Pain, Spontaneous—Pain on Locomotion (Uterine Dyskinesia)—Explanation of this Symptom: its great Importance—Undue Tenderness of the Uterus to Touch—The ‘Irritable Uterus’ of Gooch shown to be Acute Flexion.  
 Dysmenorrhœa, Leucorrhœa, Menorrhagia, Amenorrhœa—Sterility—Abortions—Statistics of Sterility and Abortions in Hospital and Private Practice.  
 Disturbance of Functions of Bladder—of Rectum—Dyspareunia—Reflex Nervous Symptoms.

THERE is abundant clinical evidence to show that of all the various symptoms, pains, discomforts of various kinds, derangements of function, &c., observable in cases of diseases of the uterus, by far the larger proportion are traceable to the existence of flexions of the uterus or to the secondary effects of these flexions. In a former chapter (see p. 57) a list was given of the various symptoms observed in practice. It will now be necessary to take these symptoms one by one and point out how far they are connected with the existence of uterine flexions.

*Pain* is either (1) *spontaneous*—occurring, that is to say, when the patient is at rest; or (2) *it is produced by motion of the body or exertion*; or (3) it is produced by touching the uterus itself—*abnormal sensitiveness*.

*Spontaneous pain*.—It is not common to meet with severe spontaneous pain in cases of flexion of the uterus when the patient is completely at rest. It is not uncommon to meet with a continuous slight aching. Spasmodic pain is not very uncommon. It has been long ago described under the name *uterine colic*—a pain coming suddenly, lasting a short time, and disappearing for a distinct interval, resembling, in fact, very much a miniature labour pain. Such spasmodic pains are now and then met with in cases of uterine flexion. In a few cases a fixed pain is observable even when the patient is at rest, this fixed pain being in various positions.

It varies also according to the nature of the flexion. As a



rule, the presence of anteflexion is indicated by one kind of pain, and the presence of retroflexion by another kind of pain. But these are rules that are open to exception. Most commonly the pain which the patient experiences is felt in the back, in the sacral region. Another frequent position for pain is one of the groins, just above Poupart's ligament, on one or the other side. It is sometimes felt in the region of the uterus itself, but this is not so common. It is rather common for it to be experienced down the back of the legs, down the back of the thighs, on one side or the other. With retroflexion the pain most commonly occurs in the back, with anteflexion most commonly it occurs in the inguinal regions; in different cases, however, we find very remarkable variations in these rules.

Some years ago I was requested to see a young lady who had been affected with pains in one spot in the abdomen, just on a level with the umbilicus, and on the left side of it; she informed me that she had not been without that pain for a period of five or six months, and she had, previously to this time, for some years experienced other pains and serious discomforts. But the particular circumstance to which she called my attention, and the circumstance which had also attracted the attention of the practitioners who treated her, was this pain in the abdominal region, in the position indicated. No tumour could be discovered in the abdomen, nor was there any apparent cause for this pain. But, on investigating the condition of the uterus, it was found that the patient was the subject of acute retroflexion. The case was additionally interesting from the fact that after the introduction of the sound into the uterus, and turning the uterus into its proper position, there was no return of the pain whatever. Further treatment was necessary to rectify the state of the uterus; but, as regards this particular pain, which was a source of so much annoyance to the patient, it is a fact that after the first use of the sound the pain in question went entirely away. Another case, equally interesting, was that of a lady who had had one child about five years previous to the time of my seeing her. She had been unable to walk about or to follow her ordinary avocations since the labour; but the inconvenience of which she chiefly complained was a pain on the right side of the abdomen, on a level with the umbilicus, and, in fact, in a corresponding position to the pain present in the first case mentioned. This patient was found on investigation to have acute retroflexion of the uterus.

I mention these exceptional cases, because they illustrate the fact that the pain which is produced by flexion of the uterus is not always in the same position. More generally, in 90 per cent. of cases, the rule holds good that the pain is located in the back in

cases of retroflexion, and in the inguinal regions in cases of ante-flexion. As a rule, patients do not complain of pains, in cases of flexion, so long as they remain quiet. If they remain in bed, or are content to lie on the sofa, there is usually but little pain. But any degree of motion is sufficient, or may be sufficient, to bring on pain, and the pain that is thus brought on may be either severe in degree or comparatively trifling; in many instances the discomfort which is produced can hardly be said to amount to pain.

*Pain on locomotion (uterine dyskinesia).*—This is one of the very commonest of the symptoms observed in cases of uterine flexion. It is a symptom to which no sufficient amount of attention has as yet been paid, and it is so important in its effects, that careful consideration of the connection as effect and cause between it and uterine flexions is absolutely necessary.

In patients suffering from flexions the pain produced by locomotion varies in degree very much. It varies from a slight pain in the back to a complete inability to walk or move without the extremest suffering. Questioning patients as to their sensations, it will be found that those sensations or discomforts to which they attach the greatest importance are almost invariably such as would come under the above heading—uterine dyskinesia.

The pain produced by locomotion may be slight or it may be violent in degree, but the characteristic of it is that it is brought on by motion. It may be so severe that the patient is practically unable to move at all, or it may be so slight that the patient moves in spite of it, and continues to do so. The patient is able to walk or to move. There is no paralysis, in the ordinary sense of the word, but there is a strong disinclination to move in consequence of the suffering known by experience to attend it. The degree of disablement varies exceedingly in different cases. Some patients do not mention it unless they are asked whether they can walk an average distance, or take a moderate walk, without suffering pain; others can talk of nothing else—the inability to do this, that, or the other, to walk, or to ride, or to visit—these are to them ever-present evils from which they desire deliverance. The patient informs us that she is unable to stand for more than two or three minutes at a time, after which she is obliged to sit down. Such patients cannot even bear to be kept waiting at the door while the bell is being answered. Other patients find that walking a short distance brings on so much pain that they

are obliged to restrict themselves in walking exercise. In extreme degrees we find that the act of walking at all produces so much discomfort that exercise is impossible. It is a remarkable feature that in all these cases motion produces pain; and, as regards the kind of motion which produces pain, we find that it is precisely those kinds of motion which might be expected to increase the already existing flexion which give an intensity to the pain. Such, for instance, as stooping down to pick up any object from the floor, sitting for a long time on a straight-backed chair, leaning forwards, reaching upwards to take a dress from a clothes-peg, going upstairs, &c.

The disablement is sometimes a most terrible misfortune, the patient being shut off from most of the enjoyments of life, for the simple reason that locomotion is impracticable. Patients consult us for a variety of reasons. In many cases undoubtedly the locomotive disability is not the reason they assign for applying for relief. In a vast number of cases, however, this is the reason impelling them to seek aid, although they are not aware of it, or have at all events not formulated their ideas on the subject with any degree of precision.

The significance of this symptom has been overlooked, partly because it is so common, partly also because the idea has been too frequently entertained that this disinclination for taking exercise, for walking, and other kinds of exertion, is a fanciful one—that it should not be treated seriously, being a whim or caprice of the patient, which, in the interest of the patient herself, should not be encouraged.

In sixty-seven cases of uterine distortion or displacement, admitted during seven years into All Saints' Institution, reported on by me in a paper read to the Obstetrical Society of London,<sup>1</sup> the symptom was so frequently observed that it may be said that almost all the sixty-seven patients presented it in a marked form. The following are quotations from the paper in question:—

‘The maladies with which these sixty-seven patients were affected existed in various degrees of intensity. In several cases the patients were actually bedridden, in others the capacity for locomotion was so materially diminished that the sufferers had to give up their employment. In other cases, again, the malady, though not so severe, had proved intractable, and therefore relief was sought in the institution.’

‘Outwardly, the condition of these patients was characterised

<sup>1</sup> *Obst. Trans.*, vol. xxii. for 1880.



by great weakness, more or less inability to walk (uterine dyskinesia), and a general condition of mal-nutrition. Internally, the principal organ affected was the uterus; various degrees and forms of uterine distortion and displacement existed, causing painful symptoms of various kinds, pain on locomotion, sickness, and menstrual irregularities being those principally spoken of.'

'Almost all the sixty-seven patients admitted into the Institution and comprised in the foregoing remarks presented this symptom in a marked form. It may almost be said that this was indeed the principal symptom, and the one which had forced itself on their particular attention in the majority of the sixty-seven cases. This symptom I regard indeed as one deserving of attentive notice in all cases of uterine distortion and displacement. The fact appears to be that physical exertion, of almost any kind, is, under such circumstances, uncomfortable in various ways, because it involves an exaggeration or temporary increase of the malady from which the patient suffers. An active life is necessarily abandoned after a time by the sufferer, and a helpless invalidism is the result in protracted cases. Some of the patients treated in All Saints' Institution had been bedridden for several years. With reference to such cases, it must be further remarked that the affection, which is indeed a very real one in these instances, is one which it was formerly the custom to regard as imaginary, fanciful, or hysterical, and such patients were consequently deprived not only of medical help, from the fact that their cases were misunderstood, but of the sympathy of their friends, who regarded them as capable of exertion if "they only made an effort," as the expression goes. The fact is, that in these cases exertion only aggravates the mischief and perpetuates the malady.'

That uterine displacements are attended with discomforts is not a new idea. Because they are not absolutely universally attended with discomforts, certain writers have thought themselves justified in saying that uterine displacements are in themselves of no particular importance. But, obviously, the true method of arriving at the truth on this subject would be to inquire how far and how frequently discomforts referable to the uterus, such as the particular one now under consideration—namely, impaired locomotion, or pain produced by locomotion—can be proved to be connected with uterine distortion and displacement. The two following propositions are essentially different, as will be readily admitted when they are concisely stated. Proposition 1: Uterine distortions and displacement invariably give rise to pain on loco-

motion. Proposition 2 : Pain on locomotion of such a kind as to be referable to the uterus is invariably associated with the presence of uterine distortion or displacement. These propositions are not identical, nor are they equally true. The first proposition is more nearly true than is generally imagined. The second proposition is, however, according to my experience, almost absolutely true, and this is the particular point to which attention is now directed.

The connection between uterine distortion and pain on locomotion has attracted little attention at the hands of previous writers. To this statement a noteworthy exception must be made. Chassaignac, in his work on 'Clinical Operative Surgery,' published some years ago,<sup>1</sup> in speaking of the relation subsisting between certain morbid conditions of the uterus ('deviations') and the pains and discomforts with which these alterations are associated, thus expresses himself. Question : What is the cause (says Chassaignac) of the 'accidents douloureux' observed in women the subjects of uterine deviation ? Answer : The 'ballottements' which the deformed or displaced uterus undergoes. Thus two conditions, the deviation and the movement impressed on the organ, must be conjoined in order that the pain may be produced. Further, this author goes on to state his opinion that the reason a particular deviation gives rise to pain in one patient and not in another is, that the *ballottement* is in some way prevented. Also that relief is to be given by curing the deviation or by preventing the *ballottement*. Hence, he says, the horizontal position is so frequently effective in abolishing the pain. Hence, also, the good effect of pessaries, the benefit derived in some cases from hypogastric bandages, &c. The uterus is thus brought to a state of rest. It is thus made evident that Chassaignac recognised clinically the connection above insisted on ; and not only so, he endeavours to explain this connection by the concussion or jarring of the distorted or displaced uterus which motion of the body produces. On this explanation something further will have to be said presently.

Before going further, however, it is necessary to deal with the fact, or supposed fact, that in some cases uterine distortions do, and in others do not, give rise to painful sensations during locomotion—a circumstance which has had much to do in lending support to fallacious views on this subject. Because occasionally flexions are apparently not causing particular inconvenience to the

<sup>1</sup> *Traité Clinique et Pratique des Opérations Chirurgicales*, vol. ii. p. 926. Paris, 1862.

patient, it has been argued that they are not in themselves of any particular consequence. The facts of the case, according to my own experience, are as follows. Of the various forms of uterine deviation it appears that some are more liable to be attended with pain during locomotion than others. Thus, take first descent of the uterus as a whole, unaccompanied by alteration of shape—cases of prolapsus, as they are termed. Now, it is the fact that such cases are really not attended with so much pain as others to be mentioned presently. It is quite true that when the uterus protrudes externally, this itself is a serious evil, and is attended with grave inconveniences; but when it falls short of this, and the uterus does not protrude externally, the pain experienced may not be very noteworthy. And I have been surprised in some bad cases of external prolapse to find patients complaining comparatively little of difficulty in locomotion. Movement may of course produce in such cases friction, irritation, and ulceration of the exposed organ, but, apart from these effects, the movement itself may not be accompanied with particular discomfort.

The next form of uterine deviation is version of the uterus (rotation on the transverse axis), the organ preserving its proper shape more or less perfectly, but being tilted backwards, forwards, or laterally, as the case may be. Now, according to my observation, cases of slight version may be accompanied with comparatively little discomfort. This applies to slight cases of uterine version only, for in cases of severe version, forwards or backwards, the pain produced by locomotion is generally very distressing. Cases of version not accompanied with flexion are, as before stated, not in themselves very common, but it is not very uncommon to meet with cases of slight version together with slight flexion. And in these latter cases the discomforts now under consideration are undoubtedly less severe than in the cases next to be considered.

The next category of cases are those in which there is decided distortion of the uterus generally, also accompanied with a certain degree of version of the uterus. It is in this class of cases that pain produced by locomotion is most extreme and most severe. These are the cases which furnish the instances of marked interference with locomotion, and, with few exceptions, this condition of the uterus is attended with the symptom in question in a more or less marked form. And I do not hesitate to state that I have found the condition and the symptoms associated so very constantly, that no room exists in my mind for doubt on the subject. Here



we meet, as I have already remarked, with opposing statements as to the value and frequency of the association. Thus one statement is to the effect that it is common enough to meet with cases of flexion in which there is no complaint and no inconvenience felt whatever. I can only say that such cases do not, at all events, present themselves in my practice. There are various ways of accounting for this discrepancy as to a matter of fact.

The first remark to be made in connection with this subject is, that cases vary very much in severity, and too much has been expected in regard to uniformity of symptoms when the conditions were not uniform. There is a great difference, for instance, between the degrees of flexion in the two cases of retroflexion represented in figs. 37 and 38; and the degree of the flexion, the degree to which the uterus as a whole is sunk in the pelvis, produces necessary differences in the severity of the symptoms. As regards this particular symptom, pain on locomotion, it is one which I have hardly ever found absent when the uterus is actually distorted. This symptom is plainly of importance, but it is not one which has usually been thought much of, and may have been present even to a marked degree in some of the cases, when flexion is said to have caused no complaint or inconvenience. Another circumstance, before mentioned, is that, when the flexion is slight, and there is more version than flexion, the pain and inconvenience may be slight in degree. Further, it must be borne in mind that the flexed uterus is not always in the same textural condition. Sometimes it is much congested; at other times not particularly full of blood. Dr. Braxton Hicks has published<sup>1</sup> observations on retroflexion of the uterus, and, in accounting for differences of opinion on the treatment of this affection, he points out the differences observable at different times in regard to the state of the uterus, as accounting for these diverse opinions. These remarks of Dr. Hicks meet, for the most part, with my concurrence. The congestion or engorgement is, no doubt, a condition which adds very much to the discomfort which a flexion produces; and in a case where it happened not to be present, the discomfort observed might be comparatively trifling. Then, again, the duration of the flexion is a matter affecting painfulness. When the case is one of long standing, the uterus acquires in some cases a kind of toleration of it, and locomotion perhaps ceases to be painful. But even in these cases it is enough to scrutinise the previous history to become aware of facts which tell

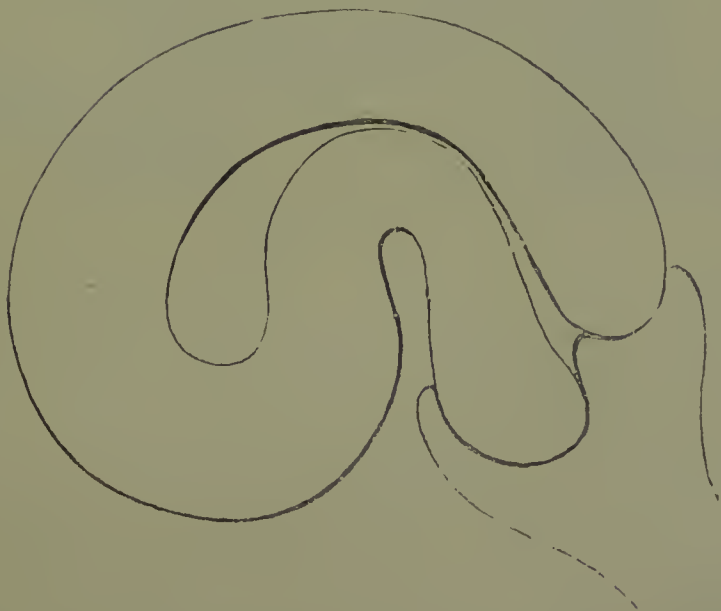
<sup>1</sup> *British Medical Journal*, 1877.

directly against the notion that flexions ever occur without giving rise to very decided discomfort and inconvenience.

In the cases where pain is produced by locomotion, it is generally

FIG. 37.<sup>1</sup>

FIG. 38.



the fact that various positions of the body or certain exertions give rise also to pain. Thus, lifting a weight, carrying a weight, stooping to pick up objects from the floor, reaching to hang up an article of

<sup>1</sup> Figs. 37 and 38 represent first and third degrees of retroflexion.

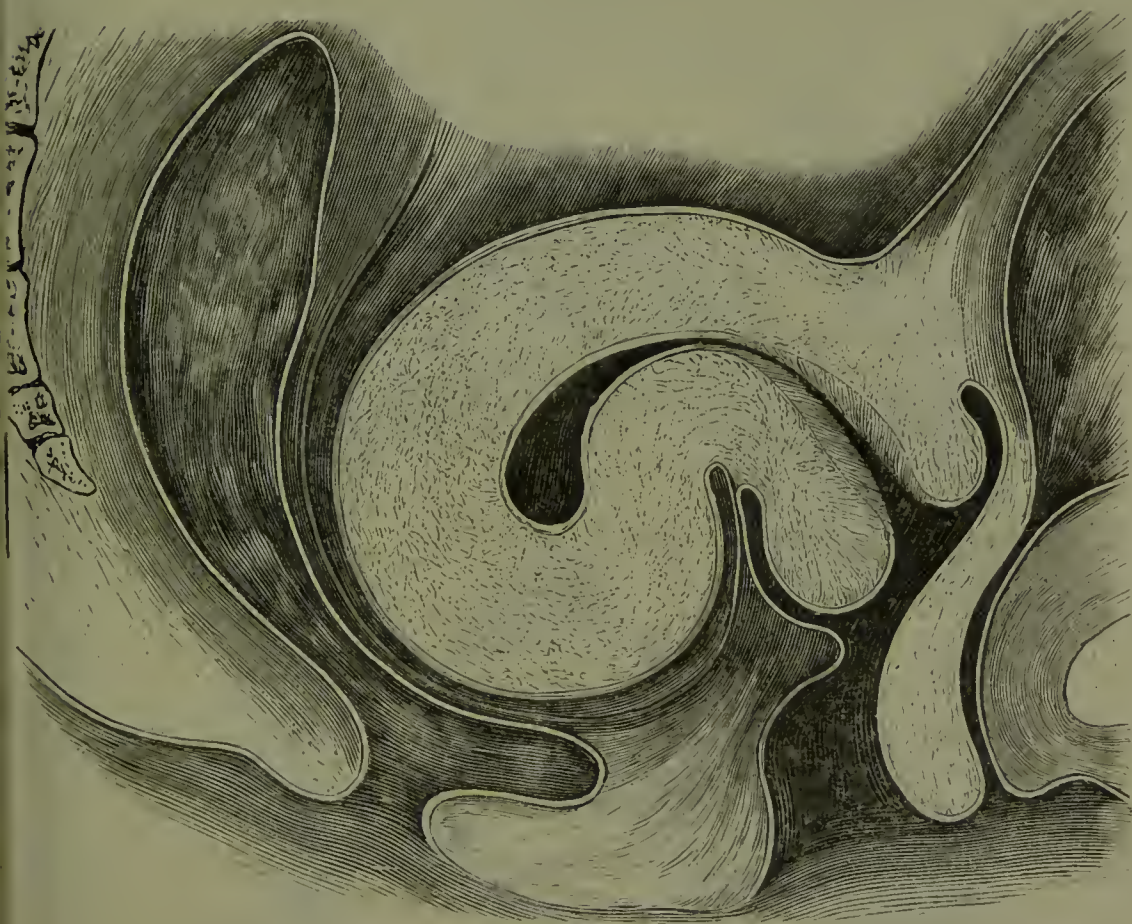
dress, riding in a carriage in an ordinary sitting position, riding on horseback, even sitting up to dinner,—any one of these exertions, and a multitude of others that might be mentioned, produce pain more or less severe. The horizontal position is in many cases the only one in which the patient is secure—and sometimes not even then—from pain.

In short, the effect of movements of the body in cases where the uterus is distorted is almost invariably to produce pain or inconvenience more or less marked. This is a most striking fact, and has the greatest significance in estimating the importance of uterine flexions. Why is it, we may ask, that this movement, these exertions, produce pain in cases of uterine flexion? Chassaignac believed it to be on account of the jars or *ballottements* the uterus receives. No doubt this is to some extent true. The flexed uterus is shaken, and the concussion is doubtless in part the cause of the painful sensation. But there is another and a far more important effect to which I would direct attention—viz., the temporary exaggeration of the flexion produced by the exertion or motion of the body. It is quite certain that this exaggeration and increase of the flexion do so occur. I have noted it in numberless cases; and it is, I feel convinced, the main cause of the pain. If corroborative evidence were required, it would be easily afforded by carefully investigating any marked case of this kind presenting itself, and inquiring into the effects of this, that, or the other motion in giving rise to pain; the very closest connection will then be shown to exist between the cause and effect in question. Given a certain kind of uterine flexion—determine what motion or exertion of the body would be likely to exaggerate that flexion: let the patient make that particular exertion, and it will be found to give rise to pain. Thus, in a case of severe retroflexion, such as that represented in Fig. 39, it is obvious that motion in the vertical position, walking for instance, will have a tendency to exaggerate the existing flexion by favouring the further descent backwards of the fundus uteri, but if the patient be in the prone position, as shown in fig. 40, it is evident that in the latter position (fig. 40) the exaggeration of the flexion is not liable to occur. This prone position is always found to be the most comfortable one in cases of retroflexion. In fact, investigation into the effects of certain exertions will often lead to the diagnosis of the nature and variety of the flexion, and actual examination is afterwards found to confirm the diagnosis so made.

Further evidence in the same direction is afforded by the



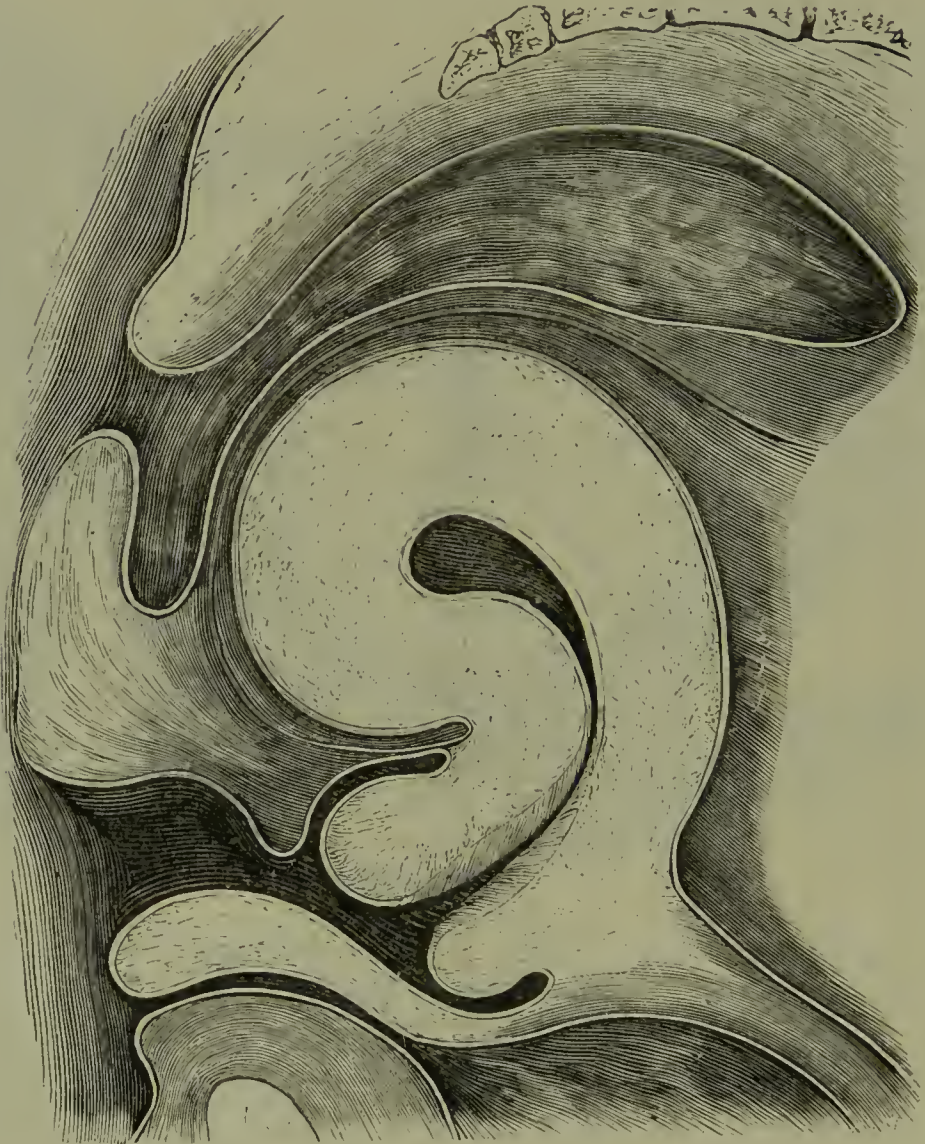
results of placing the uterus, or even by placing the body, in such a position that exaggeration of the flexion cannot be produced by motion. It is observed under such circumstances that pain is no longer produced, or it is at all events very much diminished. By mechanically preventing further increase of the flexion it will be found that motion has no longer the same effect in regard to this particular symptom.

FIG. 39.<sup>1</sup>

A further question remains to be answered, and it is the most interesting of all—namely, why is it that flexion of the uterus gives rise to pain, and why does the temporary exaggeration of the flexion increase the pain? We have carried the analysis to this point, that the pain and the flexion are associated, and the increase in the degree of the flexion is found to be answerable for increase in the amount of pain present. The clinical proofs of the accuracy of these statements which have presented themselves to me in the course of several years' observation are, to my mind, conclusive on these points. The answer to the further question,

<sup>1</sup> Fig. 39 represents severe retroflexion of the uterus, the patient being in the vertical position.

why a temporary increase of the flexion gives pain, involves the consideration of important pathological questions. Hitherto we have dealt with the purely physical elements concerned—the shape, outline, variations of shape, &c., of the uterus. We now pass into a different territory, and enter on a ground which has been a field of contention and disagreement to an extreme degree. The presence of pain necessarily implies an affection

FIG. 40.<sup>1</sup>

of nerves. When any part of the body is the subject of physical alteration or change, pain is almost universally present, this pain being directly traceable, as a rule, to the physical impression of this alteration or to some change implicating the sensitive terminal fibres of the nerves themselves. One common cause of

<sup>1</sup> Fig. 40 represents severe retroflexion of the uterus, the patient being in the prone position.



such effects is well known to be inflammation. Inflammation of an organ shut in by a tightly constricting membrane, such as the testis, for instance, how acute is the pain! this acute character being probably due to the great pressure on the nerves necessarily occurring under these circumstances. The more closely the phenomena of pain are examined, the more evident does it seem that pressure upon, or undue tension of, the ultimate sensory portions of the nerves is the cause of the pain. With reference to the uterus the pains referable to it have had various explanations. By many they are regarded as fanciful or imaginary, or due to inflammation of the uterus, or to neuralgia. But no intelligible and consistent explanation has, so far as I am aware, been given of the *modus operandi* of the production of these pains.

The explanation which I have to give is sufficiently simple; my only fear is that its very simplicity may prove a bar to its being accepted to the extent which is desirable in the interests of truth and progress. It is that the pain is produced by the actual compression of the nerves at the seat of the flexion. My observations have led me to conclude that the compression and condensation of the tissues of the uterus which occur at the seat of the bend is the immediate cause of this pain. This pain is increased for the moment, and it is very frequently actually brought on, by any circumstance tending to condense and compress these tissues still more. Such an event happens when, from any physical cause whatever, the uterus becomes more flexed. It is my belief that the circumstance of the additional compression is responsible for the pain. But it is to me quite conceivable that this may not be the whole of the explanation. Another theory might be well set up, and perhaps ably sustained. It might be urged that the congestion, engorgement, fulness, or whatever you please to term it, of the body of the uterus and of the cervix and os uteri, which are so frequently present in cases of flexion, are concerned in the production of the pain. As I shall hereafter show, congestion of the two extremities of the uterus, the fundus and os, are almost constant accompaniments of decided uterine flexions, and it is susceptible of absolute proof that the more acute is the flexion the greater is the congestion and engorgement. Plainly, therefore, it may be said, Why do you not attribute the increased pain during locomotion in cases of flexion to temporary increase of the congestion? For, it might be added, this increase of congestion would produce further compression of the nerves of the body of the uterus. In fact, according to this mode of reasoning, it might



be made to appear probable that the pain in question is due to increased tension of the nerves of the body of the uterus set up by temporary increase of the congestion of the part in question. Admitting, however, that much may be said in favour of this latter view, observation has induced the adoption on my part of the former idea as to the mechanism of the production of the pain. The concomitant congestion of the other parts of the uterus doubtless contributes to the pain, but it would seem to me probable that it does so mainly because it has a tendency to increase the compression of the tissues at the seat of the flexion. The presence of nervous filaments throughout the uterine tissues is generally admitted, though there are differences of opinion as to their actual size. At its central portion around the internal os uteri there are nervous filaments forming part of those tissues. When compression of the uterine tissues at this situation occurs, these filaments participate in that compression: hence the sensation of pain.

There are still other views as to the etiology of the pain in question requiring to be considered. It seems probable that some part of the discomfort felt by the subjects of uterine flexion during locomotion is due to the stretching and tension of the ligaments or attachments of the uterus. Thus the feelings described as 'sinking' and 'bearing down,' which are often complained of, seem due to this tension of the uterine attachments. The round ligament, the broad ligaments, and the utero-ovarian ligament are the ligaments principally affected—some more, some less. The so-called ovarian pain, which has for a long time been considered evidence of ovarian inflammation, is generally traceable, according to my experience, to uterine flexion, and to be produced by the traction of the connection between the ovary and the uterus caused by the flexion. In cases of retroflexion a severe pain, situated near the groin on one or other side, is in rare cases observed, and has appeared to me to arise from tension and stretching of the round ligament. In this place also it is proper to direct attention to the fact that when the ovary is actually displaced downwards, as is sometimes the case in flexion of the uterus backwards, the pain produced by locomotion is very acute and severe. This displacement of the ovary is, however, by no means a common complication of uterine flexion.

3. *Undue tenderness of the uterus to the touch.*—In the next place, we have to consider tenderness, or undue sensitiveness, of the uterus to the touch, and the relation of this symptom to

flexions of the uterus. In a state of health the uterus is not highly sensitive to the touch. And even the passage of the uterine sound, if carefully performed, hardly gives rise to a painful sensation until it touches the fundus uteri, when there is generally evidence of its producing a slight pain. But, under certain conditions, we find the uterus extremely sensitive and painful to the touch, so much so that the slightest touch gives rise to quite acute pain. I need hardly say that those cases where the entrance of the vagina is acutely sensitive to the touch—hyperæsthesia of the vagina as they are termed—are not included in the present discussion. Undue tenderness of the uterus may be present in all degrees; the os uteri alone may be affected, or the posterior or anterior aspects of the uterus. In severe cases the whole uterus appears sensitive to the touch.

Respecting the connection existing between tenderness of the uterus and alteration of its shape, I claim to have established a most important generalisation and conclusion, which is to the effect that tenderness of the uterus to the touch is rarely observed except in cases where flexions are present. The more acute the flexion, the more acute, as a rule, is the tenderness. Tenderness is not invariably present in cases of acute flexion, and, indeed, when cases have become quite chronic, there *may* be little or no tenderness. My proposition, therefore, is not that cases of flexion of the uterus are always attended with tenderness, but that, when tenderness *is* present, it is in all but a very few cases (I have not myself met with more than one really exceptional case) associated with the presence of uterine distortion. Possibly this may be considered a bold assertion, but I confidently make myself answerable for its substantial accuracy.

As long ago as the year 1868, I published in the 'Practitioner' a paper, having for its object to show that the 'irritable uterus' of Dr. Gooch is nothing more than chronic severe retroflexion of the uterus. Dr. Gooch's description of these cases is well known: 'A young or middle-aged woman, somewhat reduced in flesh and health, almost living on her sofa for months, or even years, from a constant pain in the uterus, which renders her unable to sit up and take exercise. The uterus, on examination, unchanged in structure, but exquisitely tender; even in the recumbent position always in pain, but subject to great aggravations more or less frequently.' Dr. Fergusson, who edited Gooch's writings some few years since, speaks of a congested condition of the uterus 'altering its shape into that of a retort,' as having existed in some

instances, though he does not appear either to have connected the retort shape with the congestion, or to have considered it as in any way concerned in the production of the pain. In my paper I proceeded to show that this retort shape of the uterus was a necessary part and parcel of the affection, and expressed my opinion that these so-called cases of 'irritable uterus' were actually cases of chronic retroflexion. Since this paper was written I am not aware that any refutation of this view has been published; and the only further observation I have to make on the subject of Gooch's irritable uterus is, that I have since seen many cases of this kind in which the condition of the uterus amply sustained the view in question. But there is a slight

FIG. 41.<sup>1</sup>

qualification to make—viz., that the same symptoms may be observed in connection with ante flexion of the uterus as with retroflexion. The typical and most severe cases are cases of retroflexion, but in severe cases of ante flexion the symptoms may be very much the same. Further inquiries and observations have made me acquainted with the close connection existing between distortion of shape and tenderness of the uterus, of which Gooch's cases of irritable uterus constitute well-marked and extreme instances.

A very acute flexion is usually attended with great congestion. The conjunction of the two gives rise to the greatest degree of tenderness. And, inasmuch as the uterus may become more bent when the fundus is turned backwards than when turned forwards,

<sup>1</sup> Severe retroflexion of the uterus.



the retroflexion cases are, as a rule, the most severe, and accompanied with the greatest tenderness. In cases where there is much congestion the tenderness is more evident when the body of the uterus, than when the cervix, is touched. In backward flexions the fundus is often found so tender that the merest touch gives acute agony, and the act of defæcation is attended with great suffering, owing partly to the contents of the rectum passing over the painful spot. In acute anteflexions the fundus is generally less easily felt, owing to the intervening stratum of urine, but the presence of acute sensitiveness of the fundus can often be substantiated in these cases.

It is worthy of mention that considerable sensitiveness to touch is sometimes found on examination in cases where other symptoms—pain on locomotion, &c.—have been slight in degree; and under these circumstances the examination reveals the grave nature of the case.

The sensitiveness of the uterus in cases of flexion may be associated with slighter degrees of congestion. It may be present also in cases where the congestive stage has passed away, leaving the uterine tissues hard and hypertrophied. In these latter cases the tenderness is less universally spread over the uterus.

Extreme sensitiveness is met with in many quite chronic cases of flexion, at the internal os uteri, or its neighbourhood. The existence of this sensitiveness is, of course, only ascertained by the use of the sound. This, however, seems the place to mention it. Under these circumstances there exists a severe chronic neuralgia at the internal os. The subjects of this affection have well-marked pain on locomotion, always situated in some one spot. Thus, in two very chronic anteflexion cases where this severe internal sensitiveness existed, walking always occasioned so severe a pain in the inguinal region that it had to be given up, and the sofa had become always necessary.

*Dysmenorrhœa.*—Uterine flexions are not the sole cause of dysmenorrhœa. Again, flexions of the uterus are not always attended with dysmenorrhœa. One of the most frequent effects of flexion of the uterus is, however, to produce impediment to the escape of the menstrual fluid—an effect generally due to compression of the uterine canal at its narrowest part, viz., the internal os uteri. The compression has the same effect as if there were an actual stricture of the part. How this compression is brought about has been explained at p. 154. Flexions of the uterus are in

practice found to be the principal cause of the severe *pain* felt during menstruation as well as of the extreme *difficulty* with which the exit of the menstrual products may be attended. Dysmenorrhœa is often the first symptom observed in cases of flexion, and although slight dysmenorrhœa is no proof of the existence of severe flexion of the uterus, it may be stated that when the dysmenorrhœa is chronic it may be assumed that there is an impediment to the escape of the menstrual fluid, which impediment is *in all probability* due to the existence of uterine flexion. In the chapter on 'Dysmenorrhœa' further remarks on this subject will be found.

*Leucorrhœa*.—Flexions are a very common cause of leucorrhœa, and there are few cases of flexion in which leucorrhœa, to a greater or less degree, does not occur. In the chapter on 'Leucorrhœa' further remarks on the subject will be found. Here, however, it is necessary to point out the particular relation which subsists between flexions of the uterus and 'leucorrhœa from retention,' as it may be appropriately termed. One of the effects of flexion not rarely observed is retention of the secretions of the uterine cavity within it, owing to the retort shape of the uterus, and the (virtual) closure of the internal os uteri.

There are a certain number of cases occurring not very rarely in which, during the inter-catamenial intervals, there are observed from time to time—perhaps once in two or three days, and generally particularly during the week or ten days immediately following catamenial cessation—discharges of a puriform character, coming on suddenly, lasting for a brief period only, and then ceasing. There is a puriform leucorrhœa *occurring in gushes*. This occurrence is due to the existence of chronic flexion of the uterus. It arises from imperfect emptying of the uterus. At the close of the ordinary menstrual period something is still left in the uterus. This unevacuated fluid undergoes changes resulting in its conversion into the puriform fluid. The uterus becomes distended with this accumulation. It is increased by the addition of further fluid of a watery character, poured out by the lining of the uterus, and when distension reaches a certain point, it is expelled. That is to say, it is partly expelled, but after a time further distension occurs, followed by fresh expulsion. I have observed many cases of this kind—in fact, the occurrence of puriform leucorrhœa coming away in gushes, is by itself almost diagnostic of the existence of a chronic flexion of the uterus, and, during an experience of some years, this sign has proved of great value. Patients suffering from this affection sometimes describe what they term 'little



abscesses' bursting from time to time. In certain rare cases the retained uterine contents are actually offensive to the smell, the fluid having become putrescent before it is discharged. The uterus becomes irritated, and the lining membrane secretes more fluid than usual; there is, in short, what is termed endometritis.

FIG. 42.<sup>1</sup>

*Menorrhagia.*—The menstrual periodic discharge is frequently increased in quantity in cases of flexion, though by no means constantly so—for the quite opposite effect may be noted. Nevertheless, taking all cases of menorrhagia, one with another, the commonest cause is found to be either uterine flexion, or some of the secondary effects resulting from uterine flexion.

Menorrhagia occurs often in consequence of the impediment to escape of blood; the blood accumulates in the uterus, distends

<sup>1</sup> Fig. 42 shows the third stage of anteflexion with distension of cavity and thickness of uterine walls, such as may be found in cases of chronic menorrhagic and leucorrhœa occurring in gushes.



it, and is from time to time expelled in gushes. The process observed is sometimes like that of labour on a small scale, the patient experiencing severe recurrent pains ; and after a time these pains result in expulsion of blood in considerable quantity : here we have dysmenorrhœa and menorrhagia combined. After a time the uterus becomes hypertrophied, its cavity permanently dilated, and the area of its internal surface proportionately extended. Then the patient becomes subject to permanent menorrhagia, and the quantity lost at each period may be exceedingly great. Examination reveals probably the existence of long-standing flexion, with considerable hypertrophy of the whole uterus ; or the whole organ may be found in a loose, soft, congested, sponge-like condition, the blood poor and watery in character from long-continued losses, and the large retort-shaped uterus pouring out much blood for many days together.

The presence of clots in cases of menorrhagia is sometimes noticed. Sometimes such clots are formed in the vagina, but more generally they originate in the cavity of the uterus. Retention of blood is, probably, the first event in such cases ; the blood so retained becomes clotted, and has finally to be expelled. The passage of the clot through this narrow internal os uteri necessarily occasions much pain. The dysmenorrhœa is most severe in those cases where clots have to be got rid of, and the pain is sometimes of a most agonising character. In some cases the clot never is expelled as such, but becomes broken up. No doubt some of the cases where a sanious leucorrhœa is observed for a few days after the regular period is over are cases of this kind ; the clots retained break down, and the débris are gradually, but slowly, expelled.

It must be further remarked that the difficulty experienced by the uterus in relieving itself of the retained products in cases such as above described is materially increased by the dependent position of the pouch containing the fluid. When the patient is upright, and the body of the uterus strongly bent forwards or backwards, the action of gravity is opposed to the evacuation of the uterine contents (see figs. 23 and 18). Thus, in the retort-shaped uterus, the enlarged pouch hangs downwards, forwards, or backwards, as the case may be, and the fluid must move really upwards, in order to pass through the internal os uteri, where the obstruction which exists further adds to the difficulty. The double difficulty of moving upwards in a direction opposed to the action of gravity and moving round a corner presents itself

under such circumstances. Clinical observation of these cases offers convincing proofs of the operation of these natural laws. Thus it may be found that in a case of ante flexion, with purulent retention, the discharge is free and continuous so long as the patient remains in bed, but on rising in the morning it suddenly ceases, appearing only in gushes at intervals during the day, and



FIG. 43.

on lying down again at night a further comparatively free and continuous escape of fluid occurs.

*Amenorrhœa.*—The effect of uterine flexion in arresting the discharge for a time has been mentioned, but in connection with menstrual retention only. In a certain number of cases, however, the discharge becomes gradually less and less, the periods become

<sup>1</sup> Fig. 43 represents severe ante flexion with enlarged uterine cavity, as in fig. 42, but the position of the pelvis is here altered, as if the patient were recumbent on the back. The tendency of this position is obviously to throw the fundus upwards and backwards.



habitually 'scanty,' and in a few the discharge ceases. Actual suppression of menstruation for some months, or its premature termination at a comparatively early age, is now and then observed, in cases of acute flexion. Probably the compression of the organ which is the effect of the flexion has much to do with it. The uterus having its circulation interfered with is no longer capable of carrying on its function properly.

The whole process is occasionally witnessed. In a known case of flexion, menstruation is for a time scanty. Each month it is less in quantity. By-and-by a month is passed over without discharge. After a time the interval is longer. And, concurrently with these effects, other symptoms are noticed which give evidence that the flexion has become aggravated. The flexion is now dealt with and treated, and the amenorrhœa ceases. Cases of this kind are interesting and convey important clinical lessons (see chapter on 'Amenorrhœa').

*Sterility.*—Any circumstance producing imperviousness of the external or internal os uteri must necessarily produce sterility, and flexions are responsible for this result in very many cases, the narrowed condition of the internal os obstructing the passage of fluid upwards. But in very many cases the mere obstruction is not the sole cause of the sterility. Another circumstance is to be taken into consideration—viz., the altered condition of the lining of the body of the uterus, which, as previously pointed out, is liable to be produced by retention of secretions within the uterine cavity. These retained secretions have doubtless a powerful influence in deranging the physiological process and damaging the products of conception. Further, an irritated altered mucous membrane, such as must be present in such cases, cannot offer a proper surface for the attachment and growth of the ovum, even supposing that the ovum has been impregnated and has descended into the uterine cavity.

*Abortions.*—By far the most common cause of abortions is the existence of flexion of the uterus. The almost incessantly observed conjunction of the two elements—existence of a known flexion of the uterus and liability to abortion in the same individual—has led me to this conclusion. There are undoubtedly other causes of abortion—syphilis, lead poison, accidents, falls, blows, mental emotions, &c. But, after all, cases referable to these heads collectively form a very small percentage of the number of cases of abortion actually observed.

The connection between retroflexion of the uterus and liability



to abortion is tolerably well recognised, the affection retroflexion being comparatively well known, and ready of detection. But it is not so well known, in the first place, that anteflexion is a rather common affection, or, in the second, that it is a common cause of abortion.

The proof of the truth of the statement that abortion is often due to uterine flexion is necessarily to be obtained only from careful clinical observations. Such observations only require to be made in order that the proofs may be obtained necessary to convince others as they have convinced me. Clinical histories, such as the following, constitute important evidence. In a case of known anteflexion, pregnancy occurs, and is shortly followed by an abortion. In another case, a flexion is undergoing treatment; becomes relieved up to a certain point; pregnancy occurs, and abortion happens. In another case also where flexion is known to exist, pregnancy happens, and the patient goes to full term; recovers from her confinement; becomes again pregnant, and is threatened with an abortion. On examination it is found that the old evil has recurred; the uterus is in a state of flexion. Take another class of cases. In a certain case abortion happens, the ovum partly escapes; the thickened decidua and commencing placenta are retained in utero. Examination is made, and the uterus is found acutely anteflexed or retroflexed. A succession of such cases present themselves, the circumstances being a little varied. What other opinion can be arrived at than that the abortion is due to the flexion? I assume, of course, that the operation of other possible causes of abortion is duly regarded, and the particular case excluded from these categories. Complete the proof: trace the further history of these very cases, and suppose it to be found that the phenomena described have a great tendency to recur. Let this kind of observation be made over and over again: conviction naturally follows.

The following table contains a statistical account of cases in hospital and private practice, with interesting particulars in reference to the question as to the influence of flexion of the uterus in producing sterility and in inducing a liability to abortion. Some of the facts were observed in hospital practice two years ago. A second series of facts are the results observed in private practice. And the two series of facts are so arranged that they can be compared. The general conclusion to be drawn is that, taking 100 patients affected with flexion of the uterus, it may be expected that in about one-half of them sterility or abortions will be noticed to

occur. There is a remarkable coincidence in regard to the two classes of cases, hospital and private, there being sterility or only abortions in 34 per cent. in both series. So also in regard to the fecundity, for, in the hospital series, 65 per cent. bore children (including

*Frequency of Sterility and Abortions in Cases of Flexions.*

	Sterile or only abor- tions	Absolutely sterile: no pregnancy.	Abortions only	Children and abortions	No abortion	Facts as to number of children
<i>Hospital Practice.</i> Cases of uterine flexion, 1865-1869:— 235 { 135 antelexion } { 100 retroflexion }	81 (34.4 p. c.)	57 (24.1 p. c.)	2 (10 p. c.)	27 (11.4 p. c.)	127 (54 p. c.)	
<i>Private Practice</i> Cases of uterine flexion, 1873-1879:— 668 cases (499 married, 169 single)						
499 { 360 antelexion } { 139 retroflexion }	129 } 34.2 } p. c. 42 }	107 } 28.4 } p. c. 35 }	22 } 5 } p. c. 7 }	67 } 17.8 } p. c. 22 }	164 } 47.8 } p. c. 75 }	51 patients had only 1 child. 21 had only 1 child.

11 per cent. who also had abortions), and the private practice series 67 per cent. had had children (including 17 who had also had abortions).

Of those absolutely sterile—that is, who had never had a pregnancy at all—there were 24 per cent. of the hospital cases, and 28 per cent. in the private cases.

Abortions occur very frequently, as evidenced in the above statistics. There were some few cases (10 per cent. in the hospital series and 5 per cent. in the private series) who had never had a child, but had had abortions, and in addition to these there were cases in which, although the patient had had children, there had been noticed abortions also—11 per cent. in the hospital series, and 17 per cent. in the private series. The *total* percentage of cases of flexion in which abortion was noted was, for hospital cases 21 per cent., for private cases 22 per cent.—figures which are almost identical.

The above figures have been extracted with great care from records of cases in my possession.

It may be well in the next place to speak of what may be termed 'secondary' sterility in connection with flexions of the uterus. There is abundant evidence that flexions arising after labour

give rise not seldom to sterility. The patient has had one or two children but has become afterwards sterile. The following table gives, from records in my possession, statistics in regard to the influence of flexions in producing sterility in women who have had children.

*Cases of Fertility with Subsequent Sterility.*  
(Private Practice.)

	Number of cases	Average number of years elapsed since	Variation in number of years expired since
One child only (over 1 year expired since) }	72 { Anteflexion 51 Retroflexion 21	Anteflexion 6.4 yrs. Retroflexion 8 yrs.	Anteflexion 1 to 22 years. Retroflexion 1 to 24 years.
Two children only (over 1 year expired since) }	50 { Anteflexion 38 Retroflexion 12	Anteflexion 4.4 yrs. Retroflexion 5.1 yrs.	Anteflexion 1 to 16 years. Retroflexion 1 to 14 years.

*Disturbance of functions of the bladder.*—These constitute a class of symptoms rather common in cases of uterine flexion. Great frequency of micturition is often observed in anteflexion cases. This symptom is sometimes distressing to a degree, there being a perpetual necessity for evacuating the bladder, as often, in one case, as every five or ten minutes. Retention of urine sometimes occurs as a consequence of flexion—more often from retroflexion. Incontinence of urine is occasionally observed as a result of retroflexion. Extreme pain in the bladder after evacuation of its contents is sometimes noticed in cases of anteflexion, apparently due to pressure of one wall of the empty bladder on the other.

Taken as a whole, the bladder symptoms are not always observed in cases of flexion, but they sometimes constitute the chief or most distressing of the symptoms of which the patient complains.

*Disturbance of functions of rectum.*—In cases of uterine flexion the function of defæcation is often interfered with in various ways, the patient finding often a difficulty in evacuating the contents of the rectum, in consequence of the pressure of the uterus upon it. The pressure of the uterus acts in a kind of valvular manner, and, the more the patient strains, the more complete is the closure. In other cases, defæcation is attended with considerable pain. The most aggravated cases, and they are not very commonly met with, are those in which there is retroflexion, accompanied by rectocele. The perinæum is partly destroyed,



and the rectum obtrudes a little through the vaginal aperture. The uterus is retroflexed, and presses down the rectum, and it thus obstructs the canal; a state of things may then arise which produces intolerable anguish to the patient. The rectum may become ulcerated. At the part where the rectum projects into the vagina there is a bend, and in this position ulcers are liable to form. This is an extreme case, but the right explanation of such a case is of some moment. Retroflexion may thus, sometimes, produce what appears to be a serious disease of the rectum. In some cases, anteversion leads to very serious interference with defæcation. Chronic and troublesome diarrhœa is sometimes caused by retroflexion of the uterus.

*Pain on intercourse—dyspareunia.*—This is a symptom and effect of the presence of flexions of the uterus which is very commonly present and deserves attention. There are of course other conditions of the generative organs capable of giving rise to the symptom in question, but, certainly, flexions of the organ are most common causes.

*Reflex nervous symptoms.*—The symptoms included under this heading constitute a most interesting class. The existence of a relationship between these symptoms and the presence of uterine flexion is only now beginning to be known and admitted by uterine pathologists. ‘Nausea and vomiting,’ ‘hysteria,’ ‘convulsions,’ ‘mental derangements,’ are the more important of these reflex symptoms. It is impossible to discuss the whole question in this place; the reader is referred to the separate chapters which will be found devoted to these subjects. Here it is necessary, however, to say that the clinical evidence of the very close connection as cause and effect between uterine flexion and these reflex nervous symptoms is most distinct and clear. There cannot be a question that, in the future, as observations are increased in number the truth of this statement will come to be universally admitted.

Reflex nervous symptoms are, however, by no means always present in every case of uterine flexion.

## CHAPTER XVIII.

## DISPLACEMENTS AND DISTORTIONS OF THE UTERUS (FLEXIONS).

## 6. GENERAL PRINCIPLES OF TREATMENT.

PRINCIPLES OF TREATMENT.—Indications—Restoration of General Strength.

2. Restoration of Uterus to Proper Shape and Position.

DIFFICULTIES ENCOUNTERED.—Question of Necessity for Examination—Definition of General and Local Treatment—Curability of Flexions—Various Causes of Difficulty.

GENERAL TREATMENT.—Restoration of Nutritional Power and Activity—Rest, how to be carried out—Utilisation of Influence of Gravity—Attention to Condition of Bowels.

LOCAL TREATMENT.—Positional or Postural Treatment—Prone Kneeling Position—Horizontal Position. Use of the Sound repeatedly—Cases adapted for it. Use of Sound combined with Dilatation of Canal by means of a Dilating Sound. Treatment by means of Stems: Cases requiring it—its Value and Applicability. Use of Tents. Incision of the Uterine Canal. Vaginal Pessaries—General Method of Action—Cases suitable for. Necessity for conjoint Postural Treatment and use of Sound. Other Requirements when Vaginal Pessaries are employed. Material of Vaginal Pessaries. General Summary. Palliative Treatment. Use of Hot-water Injections. Opiates. Treatment of the accompanying Congestion.

VARIOUS modifications in regard to detail and mechanical procedure are required in different cases of uterine flexion, as will be more particularly explained later on. Here, however, it is intended to describe the general principles of treatment of these affections.

The principal indications are—

1. To restore or improve the general strength and vitality of the patient, almost always in a state of deterioration more or less pronounced.

2. To restore the uterus to its proper shape and position.

The above indications are formulated in conformity with the general views which have been set forth in previous pages in reference to the nature and cause of flexions of the uterus. It will be found in practice impossible satisfactorily to treat cases unless both of the indications alluded to receive due attention.

Whether the first or the second indication is the more important will depend on the nature of the particular case.

In cases where the flexion is slight in degree and recent in occurrence, general measures may prove entirely effectual, the uterus participating in the general improvement produced by the treatment in question.

When, however, the flexion is severe and of long standing, no amount of attention to the general treatment will prove efficacious in curing the flexion, local treatment being necessary before real improvement can be expected.

In severe and long-standing cases local treatment alone is insufficient. General treatment must be associated with it or disappointment will be experienced.

At the outset the question arises as to the employment of local treatment of the uterus in cases of unmarried women affected with the disorders now under consideration. It may be well to consider how best to obviate these difficulties.

The first difficulty is as regards the *diagnosis*. In young unmarried women the diagnosis is at first of course only presumptive. Persistence of particular symptoms for many months in succession, such as marked deterioration of health, obstinate sickness, obstinate dysmenorrhœa, continued difficulty in locomotion, continued suffering of some kind referable to the uterus; under these circumstances a complete diagnosis of the case should be made, instead of waiting, as is sometimes done, two or three years before any reliable information is attempted to be gained. In many cases a tolerably exact notion of the case can be obtained by an examination per rectum, or it can be thus ascertained if a further and more exact investigation is required. The diagnosis made even in this imperfect way is of service in pointing out what general method of treatment is likely to be of use (decision, for instance, between ante flexion and retro flexion), or whether the affection is so severe as to make a vaginal examination imperative. In young unmarried women an anæsthetic is frequently advisable in cases where it is decided to make a vaginal examination. It is impossible to lay down a strict line of conduct for all cases. On the one hand, it is improper to subject young women to vaginal examinations unless they are considered necessary after proper consultation on the subject. On the other hand, it must be borne in mind that the foundation of a life-long condition of invalidism and general inefficiency may be laid by two, three, or four years' neglect of a severe uterine flexion, and consequently that delay in making a *necessary* examination may be most injurious to the patient. In cases



where the symptoms have existed for some years, there should be no scruple in insisting on the necessity for a proper examination.

Some explanatory remarks are here required respecting what is meant by general and local treatment. It has already been stated that general treatment has often a local effect. As regards local treatment itself, the most efficacious treatment is a mechanical treatment. By mechanical treatment is not meant, however, the use of instruments or necessarily of instrumental procedures. There are methods of treatment which are in their mode of action strictly mechanical—utilising the force of gravity, rest, and the like—although not including surgical procedure in the ordinary sense of the word.

*Curability of uterine flexions.*—The apparently intractable character of certain forms of the affection has led some authorities to conclude that flexions are incurable. As a general statement this is undoubtedly a mistake, although in some cases a complete cure is no doubt very difficult to obtain.

*a.* One source of difficulty is weakness of the uterus from mal-nutrition. So long as the tissues of the organ remain soft and give way to pressure, the cure of the flexion is a matter of impossibility.

*b.* Another is the atrophy often present in long-standing flexions at the seat of the bend, which has this effect, that while it may be easy to maintain the organ artificially in its normal shape, the moment the assistance ceases the flexion recurs. The uterus has virtually lost its stem.

*c.* Another is the rigidity of the uterus. It has become set in a certain abnormal shape, and though it may be unbent by means of the sound, the flexion recurs directly it is withdrawn. This rigidity may be accompanied with atrophy around the internal os, or not.

*d.* Another difficulty is the presence of adhesions tying the fundus down in its abnormal position.

*e.* The most common difficulty, however, is the absence of an exact and appreciative diagnosis of the exact physical condition of the uterus present in the particular case.

The use of the sound is an important aid in determining the curability of a given case of flexion. At all events, it is possible by its means to measure the rigidity of the uterus. By gently unbending the uterus by the sound, and then withdrawing it and observing how quickly the uterus returns to the flexed state, the degree of rigidity is indicated. In a long-standing severe

retroflexion we suppose, for instance, that the sound raises the fundus up to its proper position, but immediately it is withdrawn the fundus is felt by the finger to resume its old position. This indicates considerable rigidity; but the fact that the uterus can be raised by the sound shows that a cure is possible. The degree of resistance encountered in changing the form of the uterus by the sound is in some degree a measure of the difficulty of the cure.

The presence of atrophy in the uterine wall is indicated by the touch; the sound having been previously introduced, the thickness of the uterine wall at the flexion can be estimated by the pressure of the finger opposite this situation.

Some general statements may be made as to the curability of different cases.

The cases are most amenable to treatment in which the affection is of not over two years standing, and the uterus not very resistant to the restitution of proper shape by the aid of the sound.

Cases are tolerably amenable to treatment up to the age of thirty, even when the affection has lasted some years, provided that there is no considerable parietal atrophy, that the reposition by the sound is not very difficult, and that there are no other complications.

After the age of thirty the cure of long-standing flexions becomes more and more difficult, and the cure at the age of forty, for instance, of a severe retroflexion of ten years standing would be very difficult.

As a rule it may be stated that the time required to effect a cure is in direct proportion to the duration of the disease. Recent cases are cured most readily. Recent cases, too, are cured most completely, for long-standing flexions, even when cured, have a great tendency to recur. Thus, I could give particulars of cases both of antelexion and retroflexion cured so that the patients conceived and had children, and the flexion recurred intermediately three or four times—*i.e.* once after each labour was over—requiring treatment, which was again and again successful. It seems probable that when proper attention is paid to the general treatment, the cure of uterine flexions will become more complete. My own experience gives reason for this conclusion.

Lastly, it is to be stated that particular kinds of flexion are more difficult to cure than others, as will be more particularly described later on (see chapters on 'Anteflexion' and 'Retroflexion').

Dr. Paul E. Mundé<sup>1</sup> recently read a very interesting paper 'On the Curability of Uterine Displacements.' Dr. Mundé says, 'Permanent relief, *cure*, can be expected and will be obtained only when the displacement is of recent origin, especially when it has been produced by some sudden physical shock, or when the complete tissue-metamorphosis accompanying puerperal involution aids in restoring to the uterine supports and to the uterus itself their original and healthy tone.'

Pessaries, according to Dr. Mundé, give temporary relief, but cure only in a few cases. He prefers the wearing of astringent vaginal tampons introduced daily, for some cases of ante- and retro-displacement, and considers this method the only efficient and safe remedy for most cases of procidentia. He contends that this treatment is preferable to the use of hard or soft pessaries.

Dr. Mundé's views as to the difficulty of cure are to a certain extent correct, but I think the difficulty is over-stated. The importance of seizing the time of puerperal involution for remedying the shape of the uterus is certainly great, as Dr. Mundé points out; but, unfortunately, in many cases there is no pregnancy to help us.

*General treatment.*—The first object is to maintain the nutrition of the body in a state of activity. Attention to this is specially required in cases where there is much general debility, and where it is known or suspected that the uterus is in a condition of undue softness. Many months may elapse before much improvement is observed in regard to this special point. In a case of chronic starvation of some years duration the nutritional activity takes long to restore. How this is best to be effected has been already described (see p. 93). But it must here be stated that experience renders it evident that the secret of success in the treatment of chronic flexions with the uterus in a weak, atonic, soft condition is perseverance in careful feeding.

There are not a great number of cases, indeed, in which great care in the matter of the nutrition of the system generally can be dispensed with. It is not rare to see cases of chronic flexion in which the prostration is so severe from long-continued semi-starvation that it demands at first almost exclusive attention. The principal malady for the moment is in fact the starvation, and great care is required even to save the patient from perishing from its effects. Such extreme cases are chiefly noticed where the flexion has set up a chronic obstinate vomiting, and the

<sup>1</sup> *Amer. Journ. of Obstet.* Oct. 1881.



patient has been thus effectually deprived of nourishment for a long time.

*Rest* is a most important part of the general treatment.

The indication is to take off all pressure from the uterus. The horizontal position, modified in various ways, best effects this.

The extent to which rest must be insisted on depends on the severity of the case. In some cases it is merely necessary to order the patient to abstain from certain exertions and to walk little; in others, on the contrary, no good can be done without insisting on the most absolute rest, and that to be maintained for some time.

Certain errors are prevalent in regard to what constitutes rest. Sitting in the ordinary position in a chair with a vertical back is not rest for cases of flexion of the uterus; nor is riding in a carriage rest under these circumstances.

Rest is more particularly necessary at the menstrual periods, for the troublesome symptoms are then likely to be aggravated. There are various other precautions to take which will be suggested by reading over the list of *causes* of uterine flexion given at page 143.

Experience has convinced me that in chronic cases the persistent action of the force of gravity can be utilised very largely by a well-adjusted system of rest. In cases where mechanical internal appliances are employed this agent should be carefully brought in as an ally in the treatment. In this way only can some of the difficulties of chronic cases be overcome.

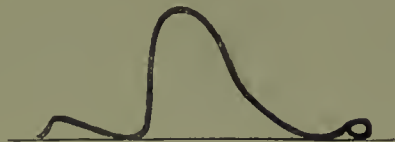
The scientific employment of rest in association with feeding, massage, &c., which has been largely employed by Dr. Weir Mitchell in America, and which has been alluded to in a former chapter, is precisely the treatment adapted to the cases now under consideration.

The condition of the bowels is always a matter demanding attention. The bowels should be opened daily, either by means of an enema of half a pint of tepid water or a minute dose of some aperient found to suit. It is most important to prevent the straining and forcing liable to occur when the bowels become constipated; and it may be assumed that such precautions will always be required in patients who do not take regular exercise.

*Local treatment.*—The first procedure to be adopted in regard to the local treatment is what may be termed ‘positional’ or ‘postural’ treatment. Of late years I have employed it with

great advantage, either by itself or as an assistance to other local measures. In the United States, Dr. Campbell of Georgia has particularly advocated the knee-and-breast position in the treat-

FIG. 44.



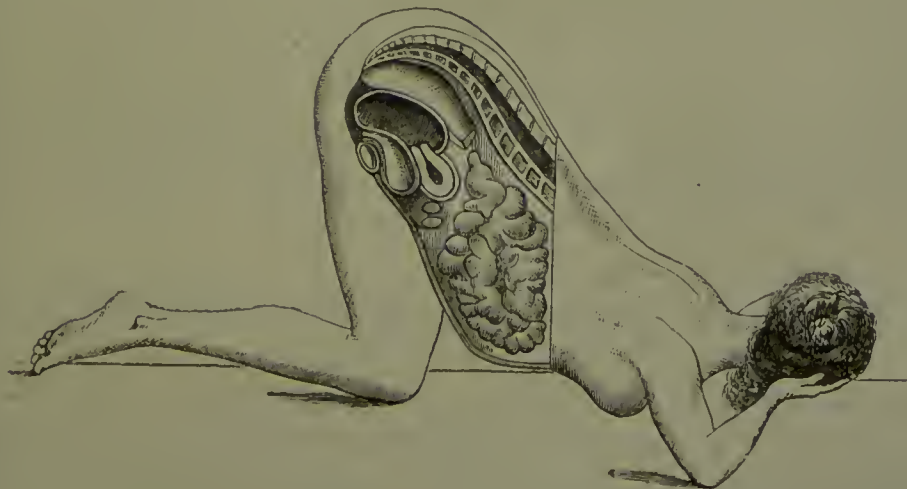
ment of retroflexions of the non-gravid uterus. The accompanying figures illustrate this principle of treatment. Fig. 44 is an

FIG. 45.



outline of the position taken by the patient. Fig. 45 shows the uterus in a retroverted position; the patient being in the knee-

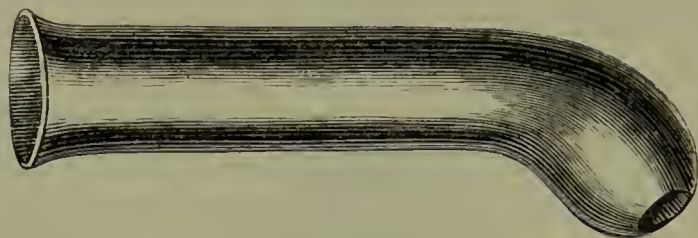
FIG. 46.



elbow position it is evident that the weight of the uterus will tend to throw the body of the organ forwards. Fig. 46 shows the patient in the same position with the uterus turned forwards

as just described. Fig. 47 represents a speculum or air-tube which Dr. Campbell recommends to be inserted in the vagina so as to allow the air to enter the vagina, the object being to facilitate the movement of the body of the uterus into its normal position. The necessity for the use of the air-tube has been disputed. I have largely employed the positional treatment as described, but without the air-tube, and the effects have appeared to be satisfactory. I have found the knee-and-elbow posture very

FIG. 47.



serviceable in cases of uterine flexion, whether backwards or forwards. The patient must be directed to maintain this position from two to four or five minutes several times in the day, or whenever it is convenient to do so; and this is to be kept up for some weeks. Postural treatment can of course be carried out by the patient herself, which is an advantage in many cases where other methods of local treatment are inapplicable. Postural treatment is not sufficient by itself in severe cases, but it is always available as an adjuvant to other procedures.

In cases of forward displacement of the uterus the horizontal position on the back is the best position, the effect being increased by placing a pillow under the sacrum. This position is the worst possible for cases of backward displacement, and it is not rare to meet with cases of retroflexion rendered chronic by the patient having been kept lying on the back for a considerable time. In cases of backward flexion the patient must be made as a rule to lie on the side, or at all events not on the back. These points will have to be further discussed later on.

We now come to special methods of internal local treatment.

The *sound* is an instrument by which the shape of the uterus can be rectified. A repetition of this rectification at intervals is a method of internal treatment of great value. The operation consists in carefully introducing the sound beyond the seat of the flexion, and then gently turning it round so that the concavity is turned the opposite way. The sound should be very slightly



curved, should be gently inserted, and no force whatever employed. By holding the sound in the uterus for a few minutes after the flexion has been reduced by its means, a greater effect is produced. This method of reduction may, if carefully done, be repeated every two or three days if necessary: the plan offers a means of gradually reducing an obstinate flexion. It is frequently found advisable to conjoin the use of a pessary with treatment by the sound, but the double treatment is more likely to produce irritative symptoms, and if a vaginal pessary be at the same time worn, the frequent repetition of the use of the sound is not so well borne.

In unbending the uterus by means of the sound, great gentleness should be employed, and it should be done slowly. It is advantageous to use a nearly straight sound, because the torsion of the uterus effected by it is less. It is more difficult, of course, to introduce a nearly straight sound, but this method of treatment should never be employed by anyone unable to thread an acute flexion with a nearly straight sound.

The dangers attendant on the above treatment are irritation and abrasion of the lining of the uterus and production of a quasi-pyæmic or actually pyæmic process; great care is therefore required to avoid abrasion or injury of the uterine lining.

The 'sound' treatment is not adapted for cases in which the uterus is very soft. It should not be employed too near to the time of the menstrual period, either before or after, and it is better that the patient remain recumbent for half an hour or so after use of the sound.

*Sound combined with dilatation.*—A method of treatment consisting of use of a dilating sound is sometimes very effectual. It is not adapted for cases where the uterine canal is very tortuous, but when it has become tolerably easy to introduce a nearly straight ordinary sound, the process now to be described can be adopted.

The instrument I employ for the purpose is one which has been copied from a larger-sized one, used by the late Dr. Rigby, and made for me by Coxeter. The principle is not new, being that of a pair of glove-stretchers, but the dilating blades are small and can be introduced easily. After introduction they are separated by a screw action, and very great force can be made to bear at the position where dilatation is most required, viz. the internal os. This instrument must be used with great caution and care. The object is by its means to very gradually open out

the uterine canal. Repetition of this dilatation should therefore be effected at intervals of two or more days, and the dilatation

FIG. 48.<sup>1</sup>FIG. 49.<sup>1</sup>

should be slight. It is not safe to effect dilatation by its means unless the instrument can be introduced without abrading the

<sup>1</sup> Figs. 48 and 49 represent Graily Hewitt's Uterine Dilator. Fig. 48 is a reduced drawing. In Fig. 49 the blades are shewn the actual size.

uterine canal. On the whole it is safer also to avoid using the dilator when vaginal pessaries are being employed.

The metallic dilator above described should have a slight groove cut on the side opposite the slight projection indicating the depth of the uterine canal. By this means the operator is able to tell when the instrument is properly and sufficiently inserted (see fig. 49, p. 198).

The system of dilatation above described is in principle identical with the gradual dilatation by a succession of bougies employed some years ago by Dr. Mackintosh for the relief of dysmenorrhœa.

A more rapid and extensive dilatation of the uterine canal has been employed by Schultze, the object being at one operation to produce considerable enlargement of the uterine canal. The procedure consists first in dilating the canal by tents, and then forcible dilatation is effected, by means of a two-bladed instrument, in such a way that the structures of the cervix are made to give way, and a large-sized canal at once procured.

The treatment of flexions by means of the *Uterine Stem* must be next considered. The object of the use of the stem is to maintain a continuous reduction of the flexion, and to keep the uterine canal straight, with the notion that after employment of this treatment for some weeks, or months, or longer, the uterus will be made to assume permanently a more normal shape, and the uterine canal cease to offer obstruction to menstruation and to interfere with other of the uterine functions.

With certain reservations, which will be presently pointed out, there is no doubt that the uterine stem treatment offers one of the best methods of dealing with cases of chronic flexion of the uterus. Many condemn the practice, and of those who consider it a justifiable and good method some do not practise it much, and reserve it for exceptional cases.

There are various methods of using an intra-uterine stem, some of which are much better and safer than others.

The requirements, according to my own judgment, are—

1. The stem should be smooth, rounded at the extremity, of an incorrodible material, and should not project more than one-third of an inch into the cavity of the body of the uterus—i.e. the whole length of the stem should not exceed  $1\frac{3}{4}$  or 2 inches.

2. It should be attached to or connected with a vaginal portion, so that the uterus as a whole shall have its motions controlled within certain limits. Some are in the habit of employing



a simple uterine stem, the objection to which is that it only keeps the uterine canal straight, and does not prevent the uterus from falling into a state of anteversion or retroversion.

3. The uterine canal must be previously sufficiently dilated to allow of the easy introduction of the stem.

4. The uterus must be in a non-irritated condition.

Cases of retroflexion are, as a rule, not suitable for the stem treatment.

There can be no question that the uterine stem can be quite safely employed by an expert fully alive to the nature of the accidents which may occur, and who properly selects the cases in which to employ them; and it is equally certain that the treatment is a great help in the cure of certain difficult cases. On the other hand, it must be admitted that, owing to the impossibility always of exercising the needful supervision, other methods of treatment will very frequently be preferred. When the uterus has attained to the condition of toleration of the stem, and it is well fitted, it may be worn without trouble of any kind often for months together. According to my own experience it is best borne in cases where the flexion is least severe; and this is to be remembered in considering the question as to the *general* applicability, or rather as to the general superiority of the stem method of treatment. Again, when there is great parietal atrophy as a consequence of the long-standing flexion, the stem treatment must, to be successful, be continued for a very long time; even after it has been in operation for a year or so, on removal of the stem the flexion may be found to return almost as badly as before. In some such cases I have found vaginal or extra-uterine pessaries to be the only practical method of preventing the recurrence of the flexion. Various details as to the application of stems will be found in the chapters on 'Anteflexion of the Uterus.'

*Use of tents.*—Tents are sometimes employed as a method of curing flexions of the uterus. They offer a means of dilating the uterine canal and temporarily abolish the flexion. Tents have been used both for the purpose of procuring room for the insertion of a stem, and also for the purpose of straightening the canal.

When tents have to be inserted so as to pass the internal os uteri—the part which generally requires dilatation most—it is frequently necessary to dilate the uterine canal below the situation in the first place, in order more readily to reach the internal os.

Tents have a temporary effect only on the uterus. They might probably be used at intervals for the purpose of straightening the canal by repetitions of the process, but it does not appear that one operation is by itself of much service in the case of a chronic flexion, though it may be of the greatest assistance to the carrying out of other methods.

Tents require great care and caution in their use. Details respecting their employment will be given later on.

*Incisions of the uterine canal.*—For the cure of sterility, or for the cure of dysmenorrhœa, the operation of incision of the uterine canal has been largely employed. This operation is not so largely in favour now it is coming to be better understood that the supposed stricture of the cervical canal is in most cases due to the uterus being flexed. But it has also been practised with the express object of facilitating the cure of flexion of the uterus, the latter condition being at the time recognised and duly appreciated.

The method adopted is to make longitudinal incisions to a considerable depth in the cervical canal, to fill the enlarged canal at first with a plug of lint, and afterwards by a stem. This operation will be described more in detail later on.

*Vaginal pessaries.*—Formerly vaginal pessaries were employed simply to prevent prolapse of the uterus. They are now also employed with great success in the treatment of uterine flexions.

It is a very great mistake to suppose that any pessary will suit any case. If employed with the view of curing or relieving a case of uterine flexion the vaginal pessary must be very carefully adjusted to the necessities of the case, or it will do more harm than good. Dr. T. Gaillard Thomas says on this subject: ‘A great deal of experience is necessary before anyone can use them with certainty of accomplishing good results. A large and varied assortment is necessary, and sufficient mechanical ingenuity to mould and adapt to special requirements of cases.’

The secret of success in adjustment of a vaginal pessary, when one is required in the treatment of uterine flexions is—(1) A right appreciation of the shape, size, and position of the vaginal canal. (2) The use of an instrument which shall not unduly distend the vaginal canal, but which shall exercise a constant controlling action on the movements of the *body of the uterus*. No better notion can be given of the kind of effect necessary to be produced than by pressing the fundus upwards by means of the finger. Let

us suppose the uterine body can be felt behind the cervix (in position of retroflexion). By pushing against this with the finger it can be made to ascend. Now this is the kind of action required to be effected by the vaginal pessary, and it has the advantage of being in constant operation. In the case of antelexion the pressure is required in front of the cervix.

It generally happens that pressure is required either in front of or behind the cervix. This pressure must have a *point d'appui*, or basis, from which to start. This is the vaginal canal, in which the supporting agent must be placed. Some vaginal pessaries give pressure in a circular manner all round the uterus, and where the diagnosis is not very exact such pessaries are better, or at all events safer, than others more specially designed to give pressure in one determinate direction.

Vaginal pessaries giving distinct pressure (forwards or backwards, as the case may be) operate on the flexion—(1) By pushing up the fundus; and (2) By exercising traction on the cervix uteri. Thus in a case of retroflexion the Hodge-shaped pessary both pushes up the fundus and draws the cervix backwards. It is a joint action, and sometimes the effect is not what is intended, because the traction on the cervix is too great and the uterus is turned on its transverse axis without being unbent. There are many details connected with this subject which will be found later on.

By a proper system of graduation in regard to size the effect of the vaginal pessary can be increased, if required, from time to time.

Vaginal pessaries with special pressure action require supervision; otherwise it may happen that the uterus gives way and becomes flexed in the opposite direction. This can only happen when the uterus is rather soft in texture. It thus follows that a vaginal pessary may work well for three months, but after that time it may require to be readjusted.

In flexions slight in degree and recent, a vaginal pessary alone is often the only treatment required. If chronic, a preliminary treatment is necessary, or (and this is a point to which attention is particularly directed) it will be necessary to keep the patient in a state of great quietude, in the horizontal position, until the pressure of the support is well tolerated. It is a great mistake to apply a support giving considerable pressure and at the same time to allow the patient to go about as usual.

Positional or postural treatment should be always used conjointly with the vaginal pessary in severe cases. In most of the



difficult long-standing chronic cases no method has seemed to me better than conjoint treatment, consisting of—(1) postural treatment, (2) use of vaginal pessary, (3) use of uterine sound, or uterine dilator. This process of cure, though tedious, seems the most effectual.

A point worthy of attention is the necessity for aperient medicine or daily enemata in cases where vaginal pessaries are worn. It is not always so, but frequently it is observed that the natural action of the bowels is a little interfered with, and medicine or enemata will then be required.

Another point is the necessity for use of vaginal injections in most cases where vaginal pessaries are worn; especially should such injections be used as the menstrual period is coming to an end. Half a pint of rather warm water mixed with a teaspoonful of Condyl's fluid is the best injection to employ.

As regards the *material* of which vaginal pessaries are constructed something has to be said. When the pessary has to be

FIG. 50.<sup>1</sup>

worn some time, and no further change of shape is required, ebonite is the best material. Copper-wire covered with india-rubber is a good material because of the softness, because, owing to the nature of its surface, it retains its position rather better than the ebonite pessary, and because any slight change of shape can be readily made in it. Cleansing injections are, however, more often required. Metallic pessaries are sometimes very convenient. Block tin is a good material, though heavier than ebonite. Aluminium is an excellent material, owing to its lightness.

<sup>1</sup> Fig. 50 shows (after Thomas) the position of the tampon in the vaginal canal.

Vaginal tampons have been rather largely used by practitioners in America and elsewhere in the treatment of flexions. Thus Dr. Paul F. Mundé of New York says: 'The protracted wearing of astringent vaginal tampons introduced daily offers for some cases of ante- and retro-displacement an excellent and, for some cases of procidentia, almost the only efficient and safe remedy for the displacement—far superior to all steadily worn hard or soft pessaries.'<sup>1</sup>

For my own part I have little experience of the use of tampons, but it is easy to see that they might be of great service, though the necessity for daily attendance on the patient which their employment involves is a very great drawback.

Electricity has been employed, I believe, in Paris for the cure of uterine flexions, with some success, and it appears to me likely that it might be found of great service if perseveringly and skilfully employed. But it could not be expected to do very much in long-standing chronic cases, while in the more recent ones simpler methods of treatment are found successful.

*General summary.*—A restoration of the firmness and natural resistance of the tissues of the uterus is required in the majority of cases where the affection is recent, and in many also where it is of long standing.

So long as the uterus is deficient in these qualities it is necessary to enforce a system of rest, or else to provide means—*e.g.* internal appliances—for preventing the action of gravity from reproducing the flexion.

When the flexion is confirmed and the uterus hard, considerable time is required to be spent in straightening it, and prolonged assistance by means of internal appliances is required after the cure of the flexion, in order to prevent the action of gravity from reproducing it.

Dilatation of the uterine canal is frequently required in the latter class of cases. And in some cases incision of the cervix is required in order to facilitate the restoration of the proper shape.

*Palliative treatment.*—In many cases it is necessary to institute treatment for the relief of the pain, irritation, and discomfort the patient is suffering from, irrespective of, or in addition to, the measures required for the cure of the affection. Thus, when there is acute congestion of the uterus the pain present may be very great. In relieving this pain vaginal injections of hot water (temperature 100° to 110°) are of great service. Dr. Emmet strongly recommends frequent use of hot-water injections

<sup>1</sup> *On the Curability of Uterine Displacements*, p. 24.

in cases where the uterus is in a state of irritation, and I have also observed very great benefit from their employment.

Opiates are most readily employed to relieve pain in form of suppository, or laudanum with water injected per rectum.

The congestion so frequently coupled with flexion is treated by some practitioners by leeches or scarifications of the os uteri. And there can be no question as to the utility of such local depletion in such cases. I confess, however, that in practice I find these measures very rarely required, for it is found that when steps are taken to relieve the embarrassed uterine circulation by elevating the fundus of the uterus, the congestion disappears. There are cases where this procedure cannot be at once effected, and in such it may be expedient to use leeches. But here comes the question, Are we to wait for subsidence of congestion before employing mechanical resources? The reply to this question is, that a well-adjusted pessary, together with observance of *complete* rest and a suitable postural treatment, will be found not only a possible, but a most efficacious method in all but a very few cases. It is only necessary to carry out this plan of procedure to become convinced of its propriety and suitability. In cases where the use of a pessary is postponed, the vaginal tampon would be found temporarily a suitable method of treatment.

*Counter-irritation* may be employed in a variety of ways, the plan selected being in accordance with the peculiar requirements of the case. A severe, sharp, acute pain is best met by application of a strong mustard poultice over the hypogastric region, or round the loins; this is to be repeated at intervals. Turpentine dropped on a piece of flannel wrung out of boiling water, and applied to the skin, is another counter-irritant, even quicker in its action than the mustard poultice.

*Warmth*.—Hot poultices of linseed-meal or bran are most valuable for the relief of the pain present in all kinds of inflammatory affections. They should be large, quite a third of an inch in thickness, and applied very hot. Several layers of flannel wrung out of boiling water, and rolled round the pelvis, offer a ready means of applying warmth. The warm hip-bath may be used for like purpose. Bottles of hot water, or hot bricks wrapped up in flannel, are household remedies of every-day use. A warm decoction of poppies is often advantageously substituted for simply hot water for fomentations. The application of *cold* is not without its uses; but, as an anodyne, warmth is generally far more serviceable.



*Anodynes.*—The internal anodyne most ordinarily available is opium. The ‘*liquor opii sedativus*,’ of Battley, is one of the best forms in which to use the medicine in question. Opium is often combined advantageously with some of the æthereal preparations. A draught containing ‘Battley’ and the compound spirit of sulphuric æther is one of the best remedies for the relief of severe non-inflammatory pain referable to the uterus or ovaries which can be employed.

In chloroform we have an agent often of great service. Complete anæsthesia by means of inhalation of chloroform is not often required, except in cases where pain is very severe, or in order to facilitate operative manœuvres of various kinds. Taken internally, in the form of chloric æther, it is very useful as an adjunct to opium.

Belladonna, hyoscyamus, and conium are uncertain, and therefore very unsatisfactory, remedies, for the relief of pain, compared with those just mentioned. The Indian hemp is, however, better entitled to consideration, and in many cases undoubtedly exercises a marked influence in allaying or preventing pain. Camphor and Indian hemp combined I have often found of great service. Indian hemp is a medicine which, so far as my experience goes, appears to affect different individuals very unequally.

Camphor, alone or combined with opium, is of service when the pain present is of spasmodic character. The various remedies known as ‘antispasmodic’ fulfil a like indication, and, as already observed, the æthereal preparations are most important for the relief of certain kinds of pain. The pain associated with uterine contractions, such as is present in cases of difficult menstruation, is best influenced by the use of antispasmodics. The compound tincture of lavender, chloric ether, and the compound spirit of sulphuric ether, may be often very usefully associated (twenty drops of each for a dose), opium being added or not, as may be judged necessary; this forms a combination adapted for these, and, indeed, all cases where there is pain of a spasmodic character, whether at the menstrual period or at other times; this ‘red’ mixture is one which is very highly approved of by patients.

Local application of anodynes is often attended with good effect. The hypodermic application of one of the salts of morphia is the most potent of these. Chloroform dropped on a piece of lint, and applied over the uterine or ovarian regions, is a remedy now and then very useful for the relief of temporary pains in these regions. Tincture of aconite may be rubbed in with a like object.

Suppositories or enemas, which are in a manner local remedies, offer frequently a ready means of inducing cessation of pain in the pelvic organs. The solid opium may be employed for this purpose, or the tincture of opium suspended in water-gruel, or mixed with tincture of valerian or assafœtida ; the latter combination is particularly useful in hysterical cases. Opiates and sedative remedies may be also used locally, by making them up into the form of pessaries, which are inserted in the vagina.

## CHAPTER XIX.

## RETROFLEXION AND RETROVERSION OF THE UTERUS.

Severity of the Affection—Curability.

Frequency—In Hospital and Private Practice—Compared with Antelexion—Single or Married.

Special Causes—Traumatic Influences—Dr. Squarey's Views—Influence of Bladder—Pregnancy—Straining Efforts in Defæcation.

Varieties—Basis for Classification. 1. Degree of the Flexion, first, second, third. 2. The Degree of Version (rotation)—Substitution of Word 'Rotation' for Version—Degrees, one, two and three. 3. Degree of Descent of Uterus as a Whole. 4. Degree of Resistance to Replacement and Unbending. 5. Degree of Congestion and Enlargement.

Progress.

Complications—Adhesions—Congestion—Not to be confounded with Rigidity—Prolapse of Ovary—Rupture of Perinæum—Fibroid Tumour—Prolapsus of Rectum.

Symptoms—Pain, Dysmenorrhœa, Menorrhagia, Leucorrhœa, Amenorrhœa—Sterility—Abortions—Derangements of Bladder, of Rectum—Reflex Disturbances.

Diagnosis.

THE backward displacements and flexions of the uterus—retroversion and retroflexion—constitute a class by themselves, and may be conveniently considered together.

Retroflexion of the uterus is one of the most painful and troublesome of the affections to which women are liable. The affection is not always severe, it may be a very slight one—so much so as to give rise to no symptoms calling for particular attention; but it is not uncommon to see patients who have been for years tortured and incapacitated by it to an extreme degree, and reduced to a helpless condition of invalidism. The obscurity which has surrounded it has not even yet been completely dissipated, there being still some who deny the importance and seriousness of the affection; so strong is the effect of past teaching in perpetuating imperfect and erroneous views in this as well as in other departments of medicine.

*Curability.*—It is well known to those who have paid attention to the subject that retroflexion of the uterus is sometimes so troublesome and severe in character that it can only be cured by



the greatest patience and care. Not only so, but cases are not rare in which the affection has been pronounced incurable. And more recently some such cases, considered otherwise incurable, have been submitted to the operation now known as Battey's operation, in order to relieve the patient of her sufferings.

According to my experience, however, the very worst cases are generally amenable to a judicious and patient course of treatment. When the disease has existed in a severe form for several years nothing can be done in the way of permanent rectification in less than a year or a year and a half; and in such cases, when the rectification is accomplished the uterus will require artificial assistance for a still longer time. I have succeeded in completely curing many very chronic cases, the success obtained being largely attributable, as I believe, to the great attention paid not only to the perfect maintenance of the uterus in its proper shape, but to the restoration of the general strength by adequate nutritional treatment. I have known cases where success has not resulted from mechanical treatment owing to neglect of the latter element in the treatment, and, under such circumstances, it is no wonder to me that they should be found 'incurable.'

*Frequency.*—The following figures convey the results of my own observations:—

During four and a half years (1865-1869) at University College Hospital,<sup>1</sup> out of about 1,200 cases prescribed for in the department for diseases of women, 112 were found to be affected with retroflexion and retroversion. [Cases of anteflexion or -version, 184.]

During a period of six years of private practice (April 1873-1879), out of 1,140 cases, 180 were found to be affected with this distortion of the uterus. [During the same period 488 cases of anteversion and -flexion were recorded.] Thus 1,140 private patients afforded 488 cases of anteflexion as against 180 retroflexion, and hospital practice afforded out of a total of 1,200 patients, 184 cases of anteflexion compared with 112 of retroflexion. (For further remarks on this point see chapters on 'Anteflexion.')

*Single or married.*—Retroflexion of the uterus is frequently observed in single women, though the greater number applying for relief are found to be married. Out of 180 retroflexion cases in private practice 41 patients were unmarried (22·7 per cent.).

<sup>1</sup> These cases were given in detail in the 3rd edition of this work.

The following Particulars refer to 180 Cases in Private Practice.

Age	Unmarried	Married : fertile	Married : sterile
18	2 cases	0	0
19	3 "	0	1
20	0 "	0	1
20-25	9 "	14	6
25-30	12 "	21	19
30-35	6 "	19	4
35-40	3 "	11	5
40-45	4 "	15	1
45-50	2 "	7	0
over 50	0 "	3	2
age not stated	—	7	3
	41	97	42
Total	180		

*Special causes of retroflexion.*—The general question as to the causes of nterine flexions has been already discussed (see p. 143). The remarks there made apply for the most part equally to cases of retroflexion and anteflexion.

Attention may, however, again be drawn to the great frequency with which what may be termed traumatic influences can be shown to give rise to this form of displacement. In a table given at p. 144, particnlars of 44 cases of retroflexion in *single* or *sterile* women are given. The table is to be read in this manner:—

There were 41 single patients  
                  42 married sterile patients  
                  97 married fertile patients

} suffering from retroflexion:

41 + 42 = 83 cases in whom child-bearing had no part in the production of the malady (7 of them, however, had had abortions). Now out of these 83 cases it was found easy to trace a traumatic origin for the retroflexion in 44 instances. In the remainder a tranmatic influence was not proved to exist, or at all events it was not detected. This is an exceedingly important fact as showing the frequent traumatic origin of the affection. And in other cases where no particular accident or special exertion could be traced a *mechanical* cause had evidently been in operation, acting more continuously and slowly, but gradually bringing about the change of shape and position.

It may be inquired, Are there any special mechanical causes for retroflexion?—that is to say, is any particular force more likely to produce a retroflexion rather than an anteflexion. In a very interesting paper by the late Dr. Squarey ‘On the Causation

of Acquired Flexions of the Uterus,'<sup>1</sup> the attempt is made to explain why in some cases flexion backwards occurs and in others flexion forwards. Dr. Squarey suggests that it is due to the position of the uterus at the time of the blow or shock or fall which occasions the flexion, and that if the uterus be high in the pelvis it is more likely to be pushed forwards, having a natural inclination in that direction when high in the pelvis; whereas, if it be low down in the pelvis, it has a natural inclination backwards, and the force will have the effect of producing in the latter case retroflexion. There is much to be said in favour of this view. On looking at the list of causes given at page 144, where the results of observations and of inquiries in 340 cases are tabulated, it will be seen that various 'traumatic' influences (as Dr. Meadows would term them) were shown to have produced in some cases one form of flexion, in others another. And particular accidents or exertions seem to have been tolerably impartial in regard to the effect produced. It must be recollected that the uterus in a state of health is well balanced, and a very trifling thing, the fulness or emptiness of the bladder, of the rectum—the position of the body at the moment—or other circumstances, may determine whether the fundus is to go backwards or forwards.

It has been shown (see p. 131) that the uterus has naturally a certain degree of what may be termed 'play' forwards and backwards, in order to allow of due action to the neighbouring viscera. The extent of this play is not, probably, in a state of health very great. The bladder is no doubt capable of producing a considerable exaggeration of the natural movement of the uterine fundus backwards, and it is quite possible that the fulness or emptiness of the bladder at the moment when a particular accident or shock is sustained may be the reason why the fundus is driven violently downwards and backwards in a state of acute flexion, whereas if the bladder had been empty the result of the accident may have been quite different. It is a fact that undue distension of the bladder may actually produce retroflexion. In the etiological list (p. 144) mention is made of one case of this kind. In this instance, retention of urine during a railway journey produced retroflexion of a very marked character.

This effect of bladder distension in causing (or rather predisposing to) retroflexion must not be confounded with bladder distension the *effect* of retroflexion, for, as is well known, retro-

<sup>1</sup> *Obst. Trans.* vol. xiv. 1873.



flexion of a large uterus may give rise to distension of the bladder and actual retention.

One important factor in the etiology of retroflexion appears to me to be the circumstance that when the uterus happens to be bent backwards there is less power of self-rectification than when it is bent in the opposite direction. In the case of ante flexion the filling of the bladder may again lift the fundus upwards, but in the case of the retroflected fundus there is nothing to lift it out of the Douglas pouch, or at all events to push it upwards. The action of the distended rectum is not analogous to that of the distended bladder. The restorative influences in the case of retroflexion are only the natural erectile resiliency and elasticity of the uterus, and possibly in some degree the action of the round ligaments. There is also a possibility of a greater amount of flexion in the posterior than in the anterior direction, owing to the depth of the Douglas pouch behind the uterus. I should be inclined to think, judging from actual experience, that in cases where severe accidents have produced severe displacements the uterus must have had an inclination forwards or backwards at the time, and that the result of this accident was a great exaggeration of the previously existing inclination.

There can be no question that traumatic influences are capable of producing severe retroflexion in individuals previously in a state of good health; but it is also certain that general malnutrition provides a predisposition of a powerful character, the practical effect of which is that a weakly patient will be more likely to be injured by a severe exertion or accident than one who is strong. Put in this way it is a truism.

Another important class of influences capable of producing retroflexion of the uterus is pregnancy and its effects. In some few cases retroflexion occurs for the first time soon after pregnancy has begun; this appears, however, to be a rather rare event. Many women become subjects of retroflexion after pregnancy is over who were not affected with it before. It does not appear, however, that pregnancy has any special effect in subsequently causing retroflexion rather than ante flexion. A pregnancy is not necessarily followed by a flexion at all. It is not, I believe, so often followed by retroflexion as by ante flexion. Still the fact remains that we meet with retroflexion in women who have borne children and in whom the retroflexion is indubitably connected with the previous occurrence of pregnancy.

Pregnancy leaves the uterus soft, large, heavy, and more liable

to be acted on by the force of gravity. It sometimes leaves behind a special predisposition, viz. rupture of the perinæum. I find that of 180 cases of retroflexion in private practice 97 were observed in married women who had had children. In these 97 cases traumatic influences were found to have produced the retroflexion in a considerable number of cases. The undue weight of the uterus, deficiency of the perinæum—there are two predispositions, and a slight walk, or slight strain, even the act of straining at stool, may under such circumstances produce suddenly the backward displacement. Protraction of the period of involution of the uterus, which means generally extreme weakness and malnutrition, is the precursor of the retroflexion in many cases.

One very common cause of severe exaggeration of retroflexion is straining in the process of defæcation. It is probable that such straining is the primary cause in a considerable number of cases.

*Is retroflexion of the uterus ever congenital?* My own observations have not furnished me with a single case. Schroeder gives the opinion that it never occurs. Grenser, in an interesting paper on 'Retroflexion,'<sup>1</sup> says, however, that Ruge in 1875 described a case of retroflexion in a newly born child.

*Varieties of retroflexion.*—It will now be necessary more precisely to define the varieties of retroflexion of the uterus.

Four principal conditions offer a basis for classification. One is the degree of the bend, another the amount of version (or rotation), a third the descent of the uterus as a whole, and, fourth, the degree of resistance which is offered to the replacement of the uterus in its proper position and shape. There are various other conditions liable to be present in various degrees in different cases.

*The degree of the flexion.*—Flexion may be conveniently spoken of as existing in three degrees—first, second, and third; the first degree when the axis of the body of the uterus has a relation to the axis of the cervix of about  $45^{\circ}$ ; the second degree when the angle is  $90^{\circ}$ ; and the third when the angle is between  $90^{\circ}$  and  $135^{\circ}$  or greater than  $135^{\circ}$ —the uterus in the latter case being doubled upon itself.

The accompanying figures represent the outline of the uterus in these three degrees of flexion.

Fig. 51 shows the first degree of retroflexion.

Fig. 52 shows the second stage of retroflexion of the uterus. The body of the uterus is heavier, and its walls are shown to be

<sup>1</sup> *Arch. f. Gynäk.* ii. p. 145.

thicker than normal. There is considerable congestion of all parts of the uterus, both fundus and cervix being larger than

FIG. 51.



FIG. 52.



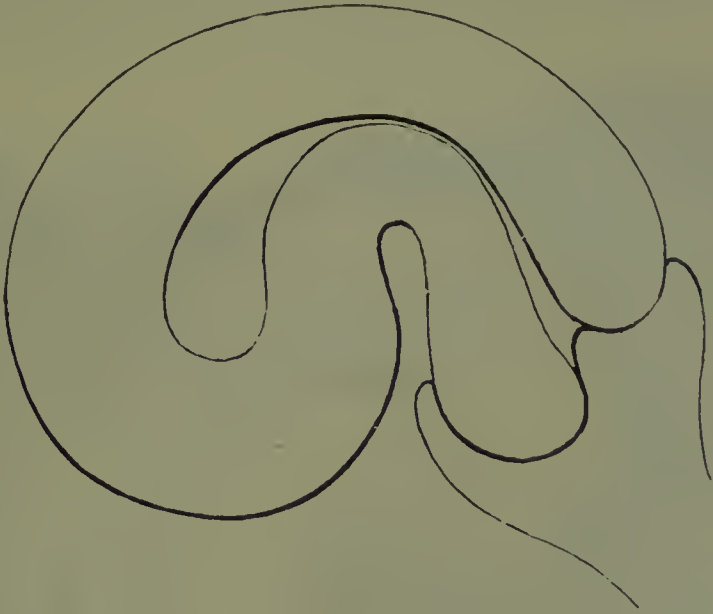
usual. The os uteri externum is widely open and the lining of the cervical canal partly everted.

Fig. 53 exhibits the third stage of retroflexion of the uterus



with much contraction and compression of the canal at and near the internal os uteri. There is a very dependent position of the fundus uteri; there is also considerable distension of the cavity of the body of the uterus, much swelling of the lips of the os

FIG. 53.



uteri, especially the posterior lip, and much eversion of the cervical canal at the os uteri.

There are other intermediate degrees of flexion possible, but for practical purposes this subdivision will probably be sufficient. It is not intended to imply that the angle formed is represented by straight lines; the uterine canal as a rule forms a curve, no part of it being a straight line.

*The degree of version (rotation).*—If the uterus were perfectly rigid, and if its axis of suspension (a horizontal line drawn transversely across the pelvis at the centre of the uterus) were also fixed, the descent of the fundus backwards would imply necessarily a corresponding elevation of the os uteri. The motion would be a see-saw motion—as the fundus descended the os uteri would be elevated—there would be true retroversion. But the uterus is not absolutely rigid, and when the fundus descends backwards it usually becomes bent in the process above the seat of the axis of suspension, and below it also. The attachments of the cervix uteri prevent the elevation of the os uteri to a considerable extent, so that the whole canal becomes flexed. When the uterus is less rigid than usual the flexion is liable to become greatest. The os uteri has different degrees of elevation in different cases. Three

factors regulate this—(1) The general rigidity of the uterus; (2) The degree of fixation of the cervix uteri; (3) The mobility (which varies) of the axis of suspension of the uterus as a whole.

A true notion of what really happens to the uterus in cases of flexion cannot be conveyed by using the words ‘version’ and ‘flexion’ only, for there is another motion to be considered—viz.

FIG. 54.<sup>1</sup>



the *rotation* of the uterus on its axis of suspension when in a flexed condition.

Let us suppose the uterus to be flexed backwards in the first degree and incapable of flexion beyond that degree. If an imaginary fixed rod be passed transversely through it at its middle, and pressure be made upon the fundus, the uterus will have a rotatory motion imparted to it. The flexion will not be increased, but the fundus will descend lower while the os uteri will be elevated. It is possible to have this rotatory motion with any degree of flexion

<sup>1</sup> Fig. 54 shows the second stage of retroflexion, together with the second degree of rotation; the rectum and bladder are also shown.



present, and as a matter of fact the rotatory movement in question is one of the most important of the clinical features of cases of retroflexion.

Rotation may, and generally does, increase the degree of the flexion, but it is not rare to meet with cases in which the uterus has become so hard in its flexed state that, although considerable rotatory motion often occurs, the degree of the flexion is not much increased thereby.

FIG. 55.<sup>1</sup>



In view of the foregoing considerations it appears to me desirable to substitute the word 'rotation' for 'version' in speaking of retroflexions, more particularly as it will then be more easy to give a practical and clinical classification of cases.

It may be convenient to consider that there are three degrees of rotation—first, second, and third.

Thus, when the uterus is slightly turned backwards on its central transverse suspensory axis, that will constitute the first

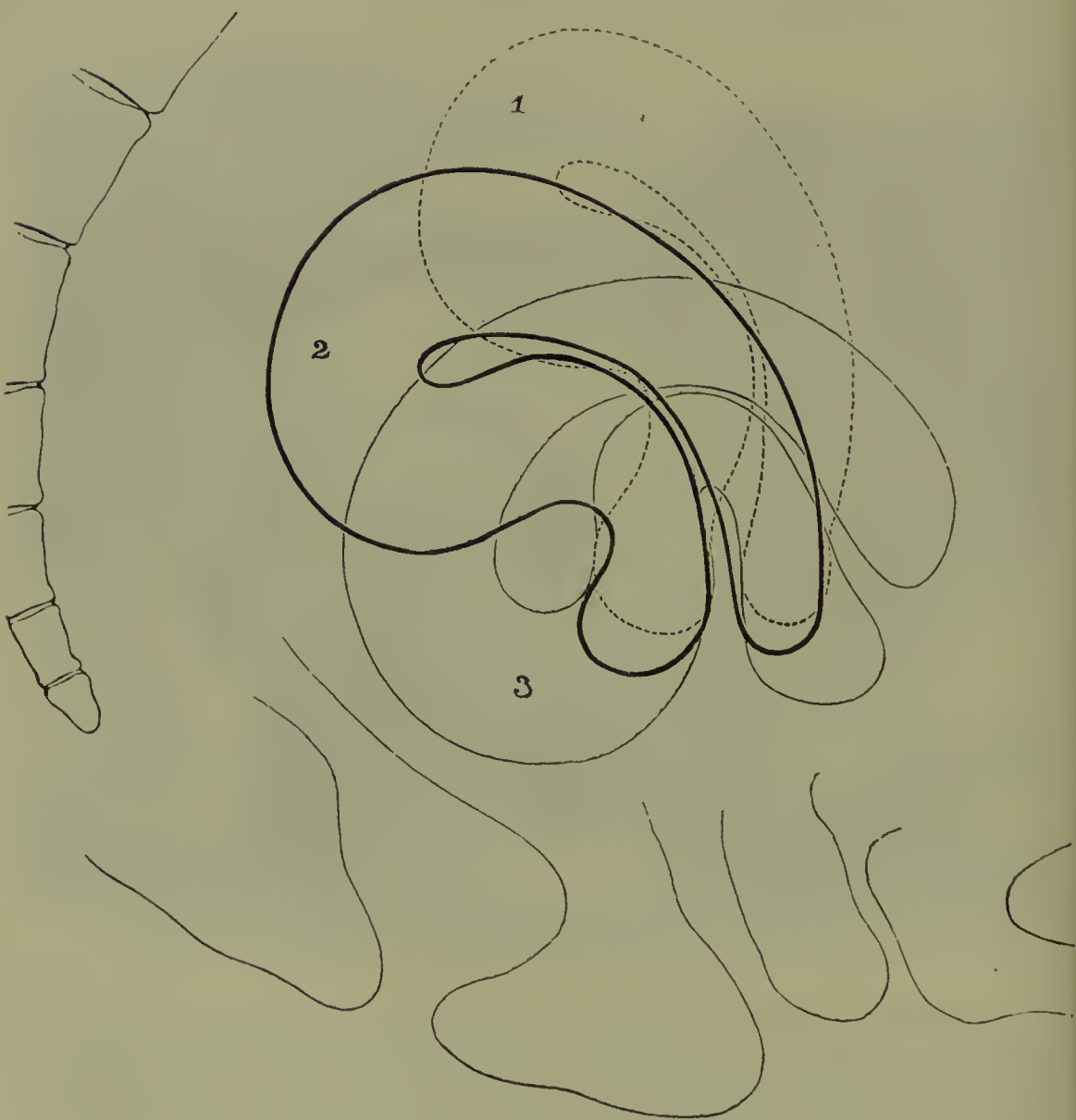
<sup>1</sup> Fig. 55 represents a third stage of retroflexion of the uterus, with third degree of posterior rotation; the pressure on the rectum and dragging on the urethra are also represented



degree of rotation; when the rotation is greater, the second degree; and when the rotation is extreme, the third degree.

Rotation may be great while flexion is very slight. Thus we may have rotation in third degree with flexion in first degree. Such a case as this would be what is usually termed pure and

FIG. 56.



simple retroversion of the uterus, and it is a condition very rarely met with.

On the other hand, rotation may be slight (first degree) while flexion is great (third degree). But neither is this a very common combination. It is more common to meet with the conjunction of rotation in the second degree, and flexion in the second or third degree.

Increase of rotation has a tendency to increase the degree of flexion, and indirectly, also, *vice versâ*.

In cases of retroflexion, the degree of rotation present is ever liable to change. Exertions of various kinds increase the degree of rotation for the time being. The degree of flexion is generally increased at the same time, so that the *displacement* as well as the *distortion* of the uterus is conjointly intensified. When, however, the exertion is at an end, there is a more or less complete return to the previous condition. As, however, the return is hardly ever equal to the disturbance, the tendency is to a gradual intensification of both rotation and flexion.

The drawing (fig. 56) shows three degrees of retroflexion—first, second, and third.

After what has been said, it is hardly necessary to point out that ascent of the fundus from a low position in the Douglas pouch does not necessarily imply a lessening of the flexion; it may mean simply reduction in the degree of rotation. The application of this remark to treatment is obvious.

*The degree of descent of the uterus as a whole.*—Mention has been made of the axis of suspension. This axis is not fixed, and it is sometimes so little fixed, that the uterus is allowed to fall very low—even to protrude from the vulva.

When the uterus is very low in the pelvis its shape is more readily made out, but the uterus may be much distorted without falling very low. As a rule, however, when the distortion is great, the uterus is low. In a very severe case we may have third degree of flexion, third degree of rotation, and descent of the uterus to the perinæum, all conjoined. And in some instances the whole uterus so retroflexed escapes at the vulva (see ‘Prolapsus’).

*Degree of resistance to replacement and unbending.*—Cases differ much in this respect. The unbending and replacement may be easy, difficult, or very difficult. The sound is used to determine the degree of difficulty.

When replacement is very easy, the uterus is usually abnormally soft. When difficult or very difficult, the flexion is usually of duration in proportion to the degree of difficulty. The resistance encountered arises, I believe, generally from the acquired rigidity of the uterus as a whole, and only very rarely from the presence of peritoneal adhesions. The uterus in chronic cases of retroflexion is almost always hypertrophied, and frequently becomes in time hard and resistant, so that it becomes more and more diffi-

cult to bend it as years go on. But this is by no means constantly the case; for I have met with very long-standing retroflexions in single patients in whom the uterus was found exceedingly soft and pliable. Extreme and long-continued mal-nutrition has always been a feature in such cases. The utero-sacral ligaments have, perhaps, been occasionally taken to be adhesions. In some few cases the uterus is readily straightened owing to the presence of atrophy at the seat of the bend. Long duration of the malady does not therefore necessarily produce difficulty of restitution.

*Degree of congestion or enlargement.*—Retroflexion of the uterus is remarkable for the extreme degree of acute congestion which may be associated with it. The cases which used to be recorded as cases of acute inflammation of the uterus were unquestionably most of them cases of severe retroflexion coupled with very acute congestion; and when the acute stage had passed away the uterus was left in a state of chronic irritability. Some of these latter were encountered by Goode, and described by him as cases of ‘irritable uterus.’ Congestion may be present in all degrees in different cases. It is most severe when the flexion is greatest, and its access in great severity marks the presence of almost complete arrest of the circulation in the organ. The uterus swells, is acutely sensitive, and all motion is painful to a degree. In other cases it is less severe, and in a few it does not form a noted feature of the case, or at all events has ceased to do so when under observation. In cases where the flexion is only in the first degree, but where the rotation is not great—such as approach to version pure and simple—the congestion may not at any period be very intense. In some such cases the symptoms, being slight in degree, have given apparent foundation for the notion entertained by some that retroflexion is an affection of no clinical importance. One effect of persistent congestion is great enlargement of the uterus as a whole, and specially of the fundus. I have found the body of the uterus four or five times its natural size in cases of severe flexion, and if allowed to remain in its flexed condition the enlargement is persistent. The enlargement due to congestion of the retroflexed fundus is sometimes so great that there seems to be a large tumour behind the uterus, and I have more than once been misled by this, on making a first examination.

The congestion affects the os uteri also, rendering it swollen, tumid; and as it is engorged with blood, the mucous membrane of the partially everted cervix presents a highly vascular appearance. Other important secondary changes occur (see ‘Congestion



of the Uterus,' p. 76). Later on the uterus is less congested, but in a state of chronic induration, liable to attacks of congestion on slight provocation.

*Progress.*—It seems very possible that the first step in the production of retroflexion is often a slight exaggeration of the natural rotatory motion in the backward direction; next slight flexion; then increased rotation and increased flexion; and so on.

From time to time the flexion and rotation are increased, a daily oscillation at the same time occurring in degree. During the day it is increased, at night diminished. The affection remains a slight one, but more usually tends to become severe. It may occur acutely, rapidly, even instantly, attaining a high degree of intensity (as from a sudden accident), or in the course of months may gradually become worse and worse.

Having become very severe, and the patient being quite laid up for some time with it, a certain degree of improvement may occur, the uterus acquires some tolerance of its distorted condition, and an incomplete recovery follows. Slowly there is a return to efficiency, but suddenly, after a few weeks or so, a slight exertion brings back all the symptoms with redoubled force, the flexion and rotation having become suddenly intensified. Again a rest; and again an illness.

In course of longer or shorter time tolerance may be established, the uterus has become harder, it bends less on motion, and a tolerable recovery is effected. It is not common to meet with this latter result where the flexion passes the second degree, or where the rotation exceeds the second degree. In the latter class of cases recovery of efficiency (by which is meant ordinary capability for the duties of life) is very rare, and chronic invalidism is the rule.

The above statements apply to the malady as observed in cases where no particular attempt has been made to remedy the retroflexion, and where the disease has taken its own course.

Marriage usually makes things worse for a time. Pregnancy may occur; more often, perhaps, does not. If pregnancy occurs abortion may, and most frequently does, follow. If abortion does not occur, a cure is for the time effected. The further history in such a case varies: either the retroflexion recurs, becomes worse, and remains worse, or there is a succession of abortions, or a succession of pregnancies with occasional abortions, or a complete cure.

*Complications.*—Congestion of the uterus in a most intense

form is almost a part and parcel of severe degrees of retroflexion. The congestion is the mechanical result of the flexion (see p. 77); it usually becomes increased in direct proportion to the degree of the flexion and rotation. It is most intense in cases where the flexion is in the third degree, but the rotation in the second. It is certainly less severe in proportion as the flexion approaches the first degree; and after some years it sometimes happens that congestion ceases to occur. Congestion is so common that it can hardly be considered as a 'complication;' in fact, the absence of it, rather than its presence, is the complication.

Presence of adhesions is a real complication. It appears to be rare, but certain cases of its occurrence are well authenticated. The fundus in such cases is bound down by peritoneal bands in its unnatural position. The elevation of the uterus by the sound, conjointly with the use of the finger in the rectum, is the best method of diagnosing their presence, for mere difficulty in raising the fundus does not prove presence of adhesions, as already stated (see p. 219).

In a paper by Dr. Erich are described 'Seven Cases of Retroflexion with peritoneal adhesions of the fundus in the hollow of the sacrum, treated by forcible separation of the adhesions;'<sup>1</sup> but on reading the reports of these cases, evidence of a satisfactory nature as to the actual presence of adhesions is wanting. The reports give the notion that they were cases in which rigidity of the flexion was present, rather than cases of peritoneal adhesions. I have repeatedly found the same difficulty of repositing the uterus which Dr. Erich describes; but, except in one or two cases, I have not had reason to suspect presence of natural peritoneal adhesions. The fact is, that after a time the uterus often becomes very firmly set in its abnormal shape. Forcible action of the sound straightens it for the moment, but the flexion returns directly. This return of the flexion is certainly not a proof of the presence of adhesions.

The utero-sacral ligaments sometimes catch the fundus, as it were, between them in its retroflexed position (as Dr. John Williams has pointed out) and occasion an intensification of the congestion. It is evident that this kind of incarceration might give rise to the notion of presence of adhesions. These bands would be felt tightly on each side, and, as a matter of fact, these utero-sacral ligaments vary much in distinctness in different cases, and it is only in exceptional cases that they are very strong and well marked.

<sup>1</sup> *Amer. Journ. Obst.* Oct. 1880.

Prolapse of the ovary on one or both sides is a complication of a very troublesome character. It does not occur very often, but when the ovary falls down along with the fundus uteri into the Douglas pouch, and becomes adherent in that position—a condition sometimes met with—the case becomes a very difficult one to deal with in the ordinary manner. If the ovary be not adherent the complication is not so troublesome, and when the fundus is replaced and kept so, the ovary goes back into its place also.

Rupture of the perinæum is a complication, grave or not according to the degree of the rupture. The retroflexion is sometimes entirely due to the deficiency of the perinæal support, and the one cannot be cured without remedying the other.

Fibroid tumour sometimes complicates retroflexion: a tumour growing at the back of the uterus tilts the uterus backwards, and constitutes by its presence a very grave complication. The tumour occasions most trouble perhaps where it is not bigger than an orange.

Prolapsus of the rectum is sometimes due to the fundus being pushed down into the rectum, partially inverting it and forced partly out at the anal aperture during attempted defæcation. Here the fundus uteri acts as a complete ball-valve in the rectum, and seriously interferes with its due action.

#### SYMPTOMS.

A general account of the symptoms observed in cases of flexions has been already given (see p. 163). These symptoms are observed in an intense degree—some more, some less—in different cases of retroflexion.

Some of these symptoms present peculiarities in cases of retroflexion which require to be noted.

The degree of pain (spontaneous) is as a rule greater in retroflexion than in anteflexion, probably because the degree of the flexion is greater in the former than in the latter. The pain is generally in the sacral region, but it may be a fixed pain on one side of the umbilicus, or even higher, or it may be in the groin. I have met with a few cases in which the pain present has been so situated as to entirely attract attention away from the uterus as the cause. I have known it to be so persistent in this situation as to have been diagnosed to indicate cancer of the pylorus. The pain on locomotion or movement (uterine dyskinesia)



is often most intense. This symptom is one almost always very decidedly and painfully well-marked in retroflexion cases. Anything which gives the action of gravity an opportunity for still further rotating and bending the uterus—as standing, walking, stooping, even sitting—may give rise to extreme torture. This symptom may be absent, or not noticed, when the disease is of slow growth, but in the end it shows itself in a marked form. A not uncommon circumstance is to find that a patient is what is called ‘very weak.’ This may turn out on inquiry to mean that she can walk but little; and investigation shows perhaps that she does not walk, because of the discomfort produced by it. This discomfort finally is discovered to be due to an unsuspected retroflexion.

The sensitiveness of the uterus to touch is in very severe cases most extravagantly great. These are the typical cases of what has been known as ‘Gooch’s irritable uterus,’ the pathology of which has been explained at p. 177. Chronic severe cases of retroflexion are cases of this kind. This degree of sensitiveness is not so often present in ante flexion cases, though it is sometimes met with. The sensitiveness is accompanied with congestion. The part most sensitive is the fundus; the os uteri is not generally so sensitive to touch as the fundus. Any attempt to examine the uterus with the finger, unless done with the greatest care, causes the patient to shriek out; and it is at first rather surprising to find the uterus so sensitive when the amount of *spontaneous* pain felt may not be very great. There is, I believe, always present in such cases considerable mechanical pressure on uterine nerves, due to the squeezing of the tissues of the organ. Dyspareunia is almost always well marked in severe cases of retroflexion.

Dysmenorrhœa is often severe, but as a rule not so common as in ante flexion.

Leucorrhœa, appearing in the form of gushes, is not uncommon. A more or less copious puriform discharge is rather frequently observed.

Menorrhagia is common. Patients with retroflexion often lose largely at the periods, and there are losses often at intervals besides. Large clots often form in the dilated uterine pouch, and are expelled with great pain and further loss of blood.

Amenorrhœa is the result in some few cases. Chronic retroflexion at first has a tendency to increase the quantity of menstrual fluid, but after a time in some few cases it may even bring it to a premature end. This latter result is due to the compression

and hardening and contraction the retroflexed uterus in some cases finally undergoes. Its circulating apparatus becomes in fact less and less efficient, and menstruation ceases.

*Sterility* is a common symptom (see p. 184).

*Abortions* also are common (see p. 184).

The *disturbances of the functions of the bladder* due to retroflexion are various. In slight cases no disturbance may be noticed. In severe cases micturition is sometimes entirely impossible for a time, owing to the dragging upwards of the meatus by the elevation of the cervix, or by the actual compression of the meatus against the pubic symphysis by the os uteri. Then we have retention of urine. Sometimes micturition is more frequent than usual only.

The *rectum* lies close to the uterus and suffers frequently in cases of retroflexion. The commonest symptom is constipation, result of actual compression of the rectum by the fundus uteri. The more the patient strains the greater the difficulty, because flexion is increased. Defæcation becomes also extremely *painful*—it is positive torture in bad cases. The bowel is sometimes in such cases thought to be diseased when it is really quite sound. Hæmorrhoids are unquestionably rather commonly produced by retroflexion. A raw bleeding ulcerated surface is sometimes found produced by prolapsus of the bowel, result of the continuous straining efforts in the process of defæcation (see ‘Complications,’ p. 221).

The *reflex nervous symptoms* due to retroflexion are numerous, and they are of the greatest importance. Severe sickness, severe hysterical symptoms, are the most marked of these, but these and other reflex symptoms are not peculiar to retroflexion, and are not therefore specially indicative of its presence. These symptoms are, on account of their great interest, reserved for consideration in a separate chapter.

#### DIAGNOSIS.

Diagnosis is generally easy, but in a few cases difficult. It is absolutely impossible to certainly diagnose retroflexion without a physical examination, many of the symptoms observed being liable to occur also in ante flexion cases.

The uterine fundus is readily felt from the vagina by the finger: also from the rectum. I have known cases where it has been overlooked, however, apparently from want of due care in placing the patient in a favourable position for examination. The lateral position, with the knees well drawn up, is required; this

position allows the finger to pass higher than any other. When the flexion and rotation are only in first degree, the fundus might not be reached even then by the finger. When in second or third degree it could hardly be missed. The lower down the uterus is as a whole, the easier becomes the exploration.

The tumour felt behind has the shape of the fundus. But not always so: it may be much swollen. In some rare cases it is pyriform, from the fundus having been repeatedly and forcibly propelled down into the rectal aperture. It is not always, but is generally, very sensitive to the touch. It is of course continuous with the uterine cervix. It can, however, only certainly be diagnosed to be the uterine fundus—unless by an expert observer—by using the uterine sound. Very gently and carefully the sound, only slightly curved, is passed, with the point directed backwards, and if it passes to the full extent the diagnosis is established. In flexions of third degree, especially with rotation to second or third degrees, the sound must be more decidedly bent in order that it may enter. Further the diagnosis can be carried by gently turning the sound round after so introducing it, when the tumour generally can be made to disappear and can no longer be felt by the finger. On withdrawing the sound the fundus again descends unless the flexion be very recent.

The sound enables us to distinguish retroflexion from fibroid tumour growing at the back of the uterus—a condition which sometimes very closely simulates it; also from a small ovarian tumour which might be felt in the same position (very rare); also from tumour produced by hæmatocele, and from tumour due to pelvic cellulitis; though the two latter conditions could hardly be confounded with retroflexion (of the non-gravid uterus at all events); also from carcinomatous infiltration between the uterus and the rectum.

The shape of the os is peculiar (as a rule) in retroflexion. It is crescentic, the posterior lip is longest; and it is everted, and often very much swollen. In the nulliparous uterus this characteristic shape of the os is not usually observed.

The position of the cervix is abnormal. It is more or less tilted upwards; sometimes it is quite high up behind the symphysis and very close to the pubic bones. The vaginal pouch behind the cervix is lost, owing to the fundus pressing it downwards and obliterating it. And there is an unnatural pouch up behind the symphysis pubis *in front of* the cervix. Moreover, by the double touch the fundus is found absent from its normal position.



## CHAPTER XX.

RETROFLEXION AND RETROVERSION OF THE UTERUS—  
(*continued*).

TREATMENT.—General—Local—Plan recommended—Outline and Details—  
Postural Treatment—Mechanical Direct Reposition—Maintenance of Proper  
Position by Vaginal Pessary—Form of Pessary recommended—Various Sizes  
required.  
Position of Patient—Use of the Sound—Conjoint use of Sound and Pessary—  
Difficulties encountered in Treatment of Cases—Adjustment of Size of Pessary—  
How far Vaginal Pessaries are reliable—Action of the A. Smith Modification of  
Hodge Pessary—Necessity for Rest, and gradual Elevation of Fundus in some  
Cases—Occasional Over-action of the Retroflexion Pessary—How long to be  
continued—Method of Introduction—Change of Pessary—Various Modifications  
of Retroflexion Pessary—Dilatation and Moulding for Cure of Retroflexion—  
Stem Pessary—Incision and Immediate Rectification—Radical Operation  
(Koeberlé)—Oophorectomy.

## TREATMENT.

THE general principles of treatment of flexions laid down at p. 189 apply and should be applied to the treatment of this particular variety—retroflexion. It is most important at the outset of the treatment that the view taken of the case be as complete as possible, and that the *general* and the *local* receive each their proper and due share of attention.

Premising that this has been done, we proceed to consider the various details of the treatment of cases of retroflexion.

*The local treatment.*—There are various plans adopted for the treatment of cases of retroflexion. The plan which I have found satisfactory in the large majority of cases I propose to mention first. It may be described as follows:—

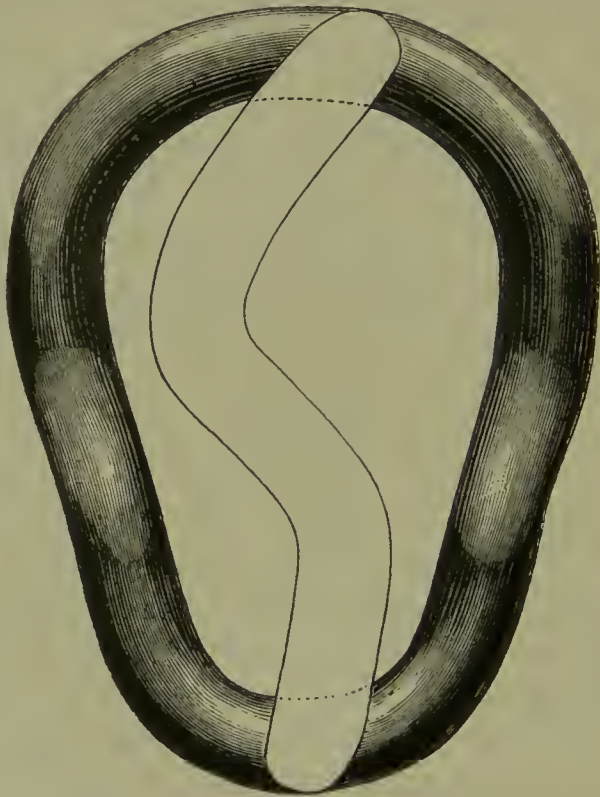
The fundus uteri is pushed upwards from behind, rapidly or slowly according to circumstances, by means of a pessary constructed on the Hodge principle; the pessary is kept *in situ* persistently and the size altered as circumstances require. The sound is employed from time to time to aid in the elevation if the elevation be at all difficult. The patient is kept more or less completely at rest until the uterus is well in its place, and

suitably maintained there. Every advantage is taken of the assistance of gravity in righting the fundus, by the prone position, by the knee-and-elbow position, by avoidance of the recumbent-dorsal position, by avoidance of the sitting posture, etc. The bowels are kept in order by daily injections, or otherwise. Pain is relieved by opiates or by vaginal injections of hot water. Careful general appropriate treatment.

The above is an outline. The details require further specification.

*Direct mechanical reposition.*—Regarding the condition as entirely a mechanical one, the resort to mechanical treatment is only

FIG. 57.<sup>1</sup>

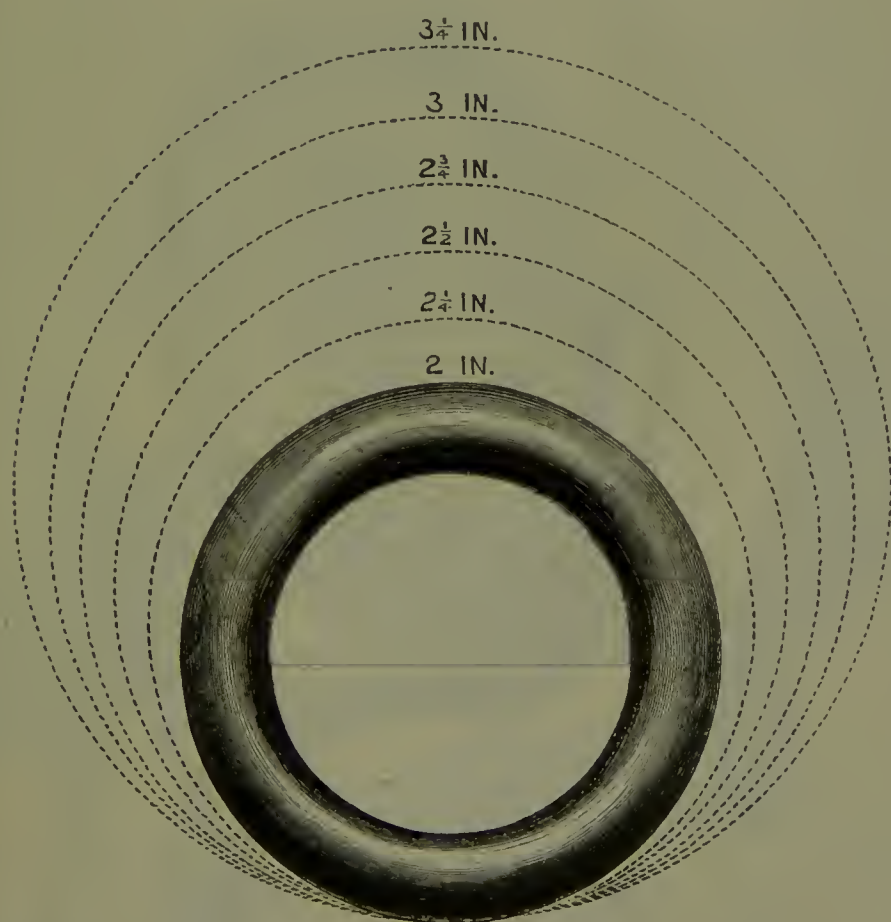


natural. There is no necessity to be afraid of restoring an acutely congested retroflexion, or of beginning the attempt at all events, simply because the uterus is acutely sensitive and in a state of intense congestion. Nor is there any necessity for depleting the uterus by leeches before commencing the mechanical restoration, seeing that this restoration will pretty certainly remove the congestion (see p. 102), as I have observed over and over again in practice. The uterine fundus may, if very sensitive, be gently pushed upwards

<sup>1</sup> Fig. 57 represents a medium-sized pessary of this kind. The ground plan and the sectional lateral view are given together.

by the fingers at first, the postural treatment following it; or it may often be replaced wholly or in part by the sound at once if the practitioner is gentle and skilful in its use. A day or two of postural treatment is a good preparation for the above measures. Surprising relief often follows the elevation of the fundus in the acutely suffering cases. The pessary may be often used at once, pressure being made slight at first and gradually increased. It is absolutely necessary at first to maintain the recumbent position, if a pessary be employed and the case at all a difficult one or one of long standing. The pessary I have for some time employed is a

FIG. 58.



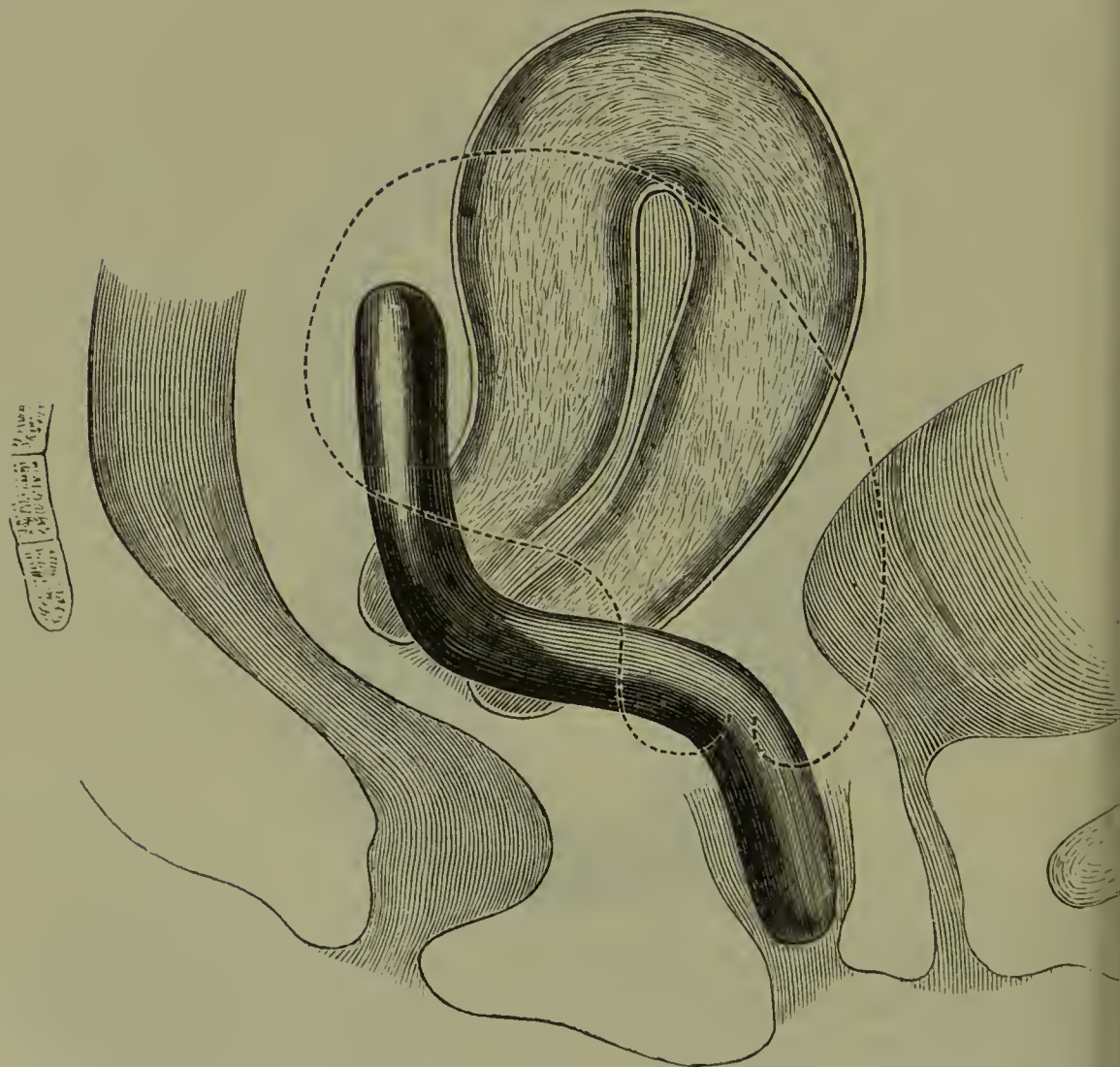
vaginal pessary on the Hodge principle. I have for the last three or four years, in the majority of cases at least, used a shape nearly identical with that known as the 'Albert Smith' shape—broad above and narrow below.

From a copper ring covered with india-rubber an admirable instrument can be made. The type of the instrument is that shown in figs. 57 and 60. It requires various modifications in different cases. Therefore, various-sized rings are required. A series of rings ranging in outside diameter from two inches to



about three and a quarter inches are required (see fig. 58): the first measuring two inches, the second two and a quarter, the third two and a half, the fourth two and three-quarters, and so on up to three and a quarter inches. The thickness here shown is five-sixteenths of an inch; other degrees of thickness are required or may be used at the discretion of the practitioner. The copper wire used should be rather stout for the large-sized rings—rather thicker than for the smaller ones.

The thickness of the ring when covered with india-rubber may with advantage be a quarter of an inch for the very small

FIG. 59.<sup>1</sup>

rings (instead of that shown in the figure, which is five-sixteenths), but about five-sixteenths is a good thickness for the ordinarily required sizes. For the rather larger sizes the thickness may be increased to six-sixteenths with advantage.

<sup>1</sup> Fig. 59 shows the action of the pessary described in the text. The dotted line represents the position of the uterus prior to the insertion of the pessary.

The accompanying drawing (fig. 59) shows the retroflexion pessary of the A. Smith type *in situ*; the drawing is life-size, the pessary shown *in situ* is constructed from a ring two and three-quarters inches in diameter. The upper curve of the instrument may be modified. I find that the curve I generally employ is a rather less sharp curve than that depicted in some of the American works, but it must be understood that this is liable to modification according to the particular case.

In the last edition of this work are represented figures of an oval-shaped pessary rather larger at one end than the other, the smaller end being behind the cervix uteri. But I have found the shape originally introduced by Dr. A. Smith to work so satisfactorily that I prefer it to all others. His modification of the Hodge pessary for retroflexion is broad above, narrow below; it has a rather sharply double bent outline looked at from the side, and it is this outline which preserves it from slipping downwards. Roughly speaking, the instrument is a triangle: the base above behind the cervix supports the fundus, the apex below should be so curved that it lies on the vaginal floor, and does not press on the urethra.

FIG. 60.<sup>1</sup>

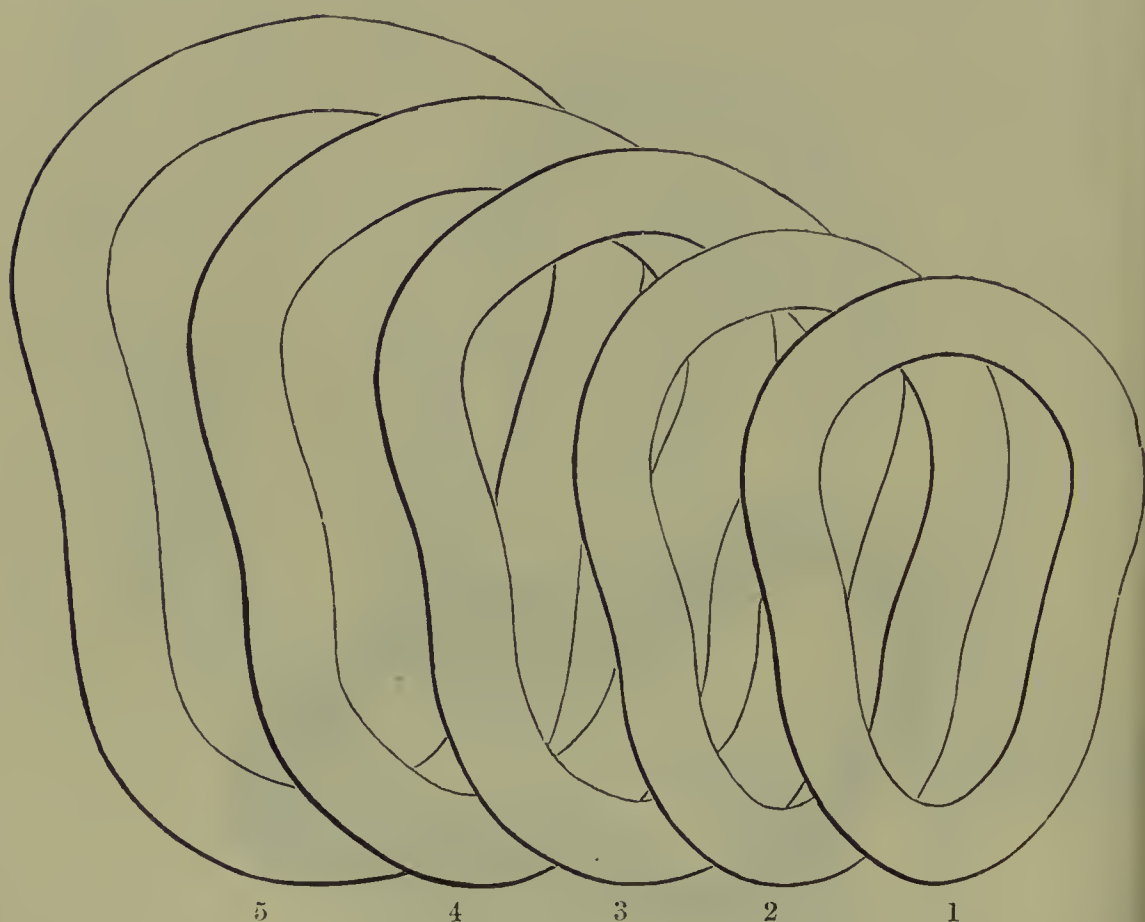
In considering the Albert Smith type of the Hodge pessary as the best, I am in agreement with several distinguished gynaecologists, both American and European.

Various sizes are required to be used in different cases. In figs. 61 and 62 are represented *eight* different sizes. The extremely small and extremely large sizes are rarely required. In single women a narrower pessary is required than in other cases. The size will generally require to be altered as the cure advances, and as the fundus rises up to near its proper position, for if the case

<sup>1</sup> Fig. 60 shows an oblique view of a medium-sized A. Smith type Hodge pessary.

is a chronic one it is quite certain that only a small-sized pessary will be borne at first ; the pessaries constructed from rings of two and three-quarters to three or three and a quarter inches in diameter are most often required for married patients. The very large sizes marked 6, 7, 8, in fig. 62 are rarely required, but they are sometimes necessary when the uterus is exceptionally hypertrophied as well as retroflexed. When the swelling of the uterus has 'gone down, as it may do after a few weeks, a smaller pessary can be employed.

FIG. 61.

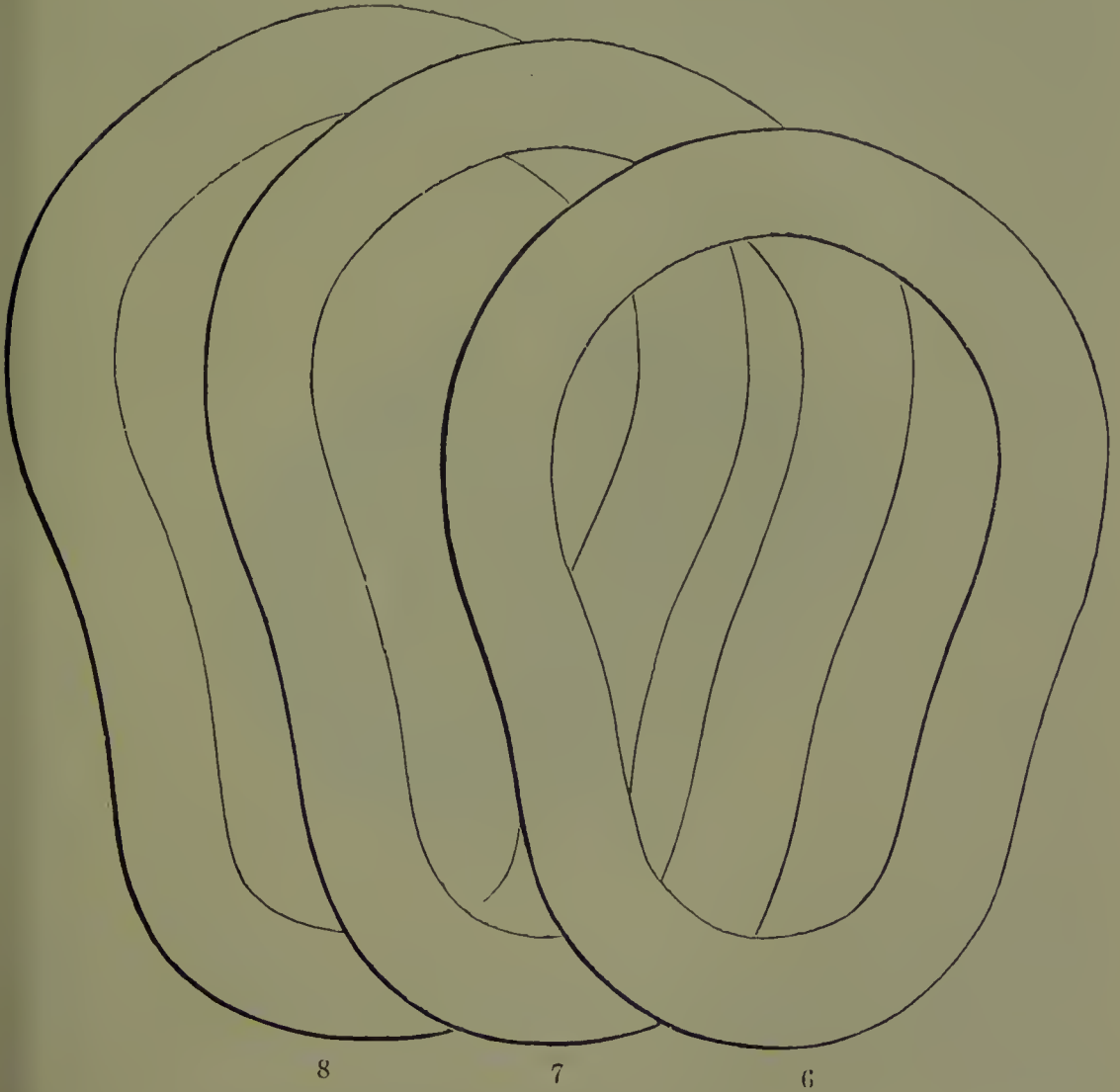


*Position of the patient.*—The patient should lie not upon the back, but upon the side, or, still better, upon the face. This is effected by making a kind of inclined plane with pillows placed under the chest and abdomen, one arm being placed quite behind the patient's back. By a little management a very comfortable position is thus attained. The result is, that the weight of the fundus uteri is in a great degree thrown forwards instead of backwards, and great assistance in the mechanical treatment is thus afforded. In severe cases this position of the body is in fact absolutely necessary, and I have seen patients who before had been in



a state of absolute torture while lying flat on the back restored to comparative comfort by the simple procedure of enforcing the position on the face. The length of time during which it is necessary to maintain this position of the body depends upon the acuteness of the case. But when there is much irritation about the uterus it is absolutely necessary for the patient to remain in this position

FIG. 62.



for some weeks. The upright position is destructive of progress in the right direction. The knee-and-breast position should be used several times a day for three or four minutes at a time. All exertion must be absolutely interdicted for a time varying according to circumstances. In this manner we carry out as far as possible what may be termed the treatment of *rest*, a most important element in the treatment of these cases.

*The use of the sound.*—The method which I recommend in

the treatment of a recent case of retroflexion is that the sound, very slightly curved indeed, should be introduced gently and gradually into the uterus, and then gently turned round, so that the concavity looks forward, and the uterus thus restored to its proper shape; that the sound should be used once in two or three days, perhaps at intervals of a week; and that this treatment should be combined with the continuous use of the vaginal pessary. In a recent case, the use of the sound is generally unnecessary for more than a limited time, perhaps for a week or two. In a chronic case, where disease has existed perhaps for some years, the use of the sound is necessary at intervals of a few days, employed with great care, extending over a period of possibly two or three months, and we may be obliged to intermit the use of it occasionally. Some cases do not tolerate the repeated use of the sound, owing to occurrence of irritative symptoms; and these are more likely to occur if the vaginal pessary is at the same time continued to be worn. When the sound is used for altering the shape of the uterus it should be bent very slightly indeed, and indeed it should be very nearly straight. The difficulty of introducing the sound is got over by pushing up the fundus uteri by the finger at the same time that the sound is gently passed inwards with the concavity backwards. Even in cases where the flexion is very acute the bend of the sound need not be great if the procedure be simultaneously adopted of pushing up the fundus. The use of the sound alone is rarely attended with any permanent benefit. The uterus almost invariably returns to a flexed condition a few moments after the sound is withdrawn. The rapidity with which the flexion returns on withdrawal of the sound is a useful indication as to the difficulty or not of the cure. The sound should always be used gently and held lightly. Force must not be employed, for the process of unbending the uterus in a chronic case is necessarily a long one, and involves considerable change and stretching of the tissues. It is very advantageous in many cases to hold the uterus in its proper shape by means of the sound for half an hour or an hour at a time.

*Difficulties in regard to treatment.*—There is a very striking difference in regard to curability under different circumstances. A case of retroflexion which has only existed for two or three months, and which is not very acute in regard to the degree of flexion, we may be able to cure in a few weeks. If the flexion has existed for two or three years it may be expected that the treatment will not be completely successful under, perhaps, six or

eight months. And in cases where the malady has existed for nine or ten years the treatment may not be successful, even in a much longer time, in removing absolutely all effects of the disease. The changes in the texture of the uterus itself are sometimes so great that it is difficult to restore the organ to its natural state, to its natural size and position, and its walls to their natural thickness (see fig. 63, which represents a long-standing case, with great atrophy of the posterior wall). And I have known cases in which the long continuance of the compression process on the tissues in the posterior wall of the uterus has left behind it a neuralgia of troublesome character, even after the shape of the

FIG. 63.



uterus had been restored. This is what might be expected, and it is analogous to those cases where inflammatory processes, resulting in compression of nerve trunks in other parts of the body, leave behind them a persistent and intractable neuralgia.

The first difficulty is the selection of the method of treatment appropriate to the case. And it is not easy to lay down precise rules on the subject. Some generalisations may, however, be offered as an attempt to smooth the way for those who have not had much experience in the matter.

The resistance offered to straightening the uterus is of great value as an indication. If the directions previously given be attended to, and the sound lightly and carefully used, the neces-



sary information can be obtained. If there is any resistance to straightening, or if the uterus returns to a state of flexion immediately on withdrawal of the sound, it is certain that treatment by a vaginal pessary *alone* will not be likely to succeed, and repeated use of sound (or other like methods) will be also required. A well-fitted vaginal pessary will do much ; but if the uterus be set and firm in its flexed condition, the only effect of its use will be to prevent increase of rotation of the uterus, but the flexion may remain unaffected. And in such cases the patient remains imperfectly relieved, or if relieved, it is found, on taking out the pessary later on, that the flexion is as bad as ever. On the other hand, if the uterus be soft and pliable, easily replaced and remaining replaced after withdrawal of sound for two or three minutes, it may be assumed that the case may be safely treated by vaginal pessaries and postural treatment or without necessity for repeated straightening.

Then it may be asked, perhaps, Cannot some cases be treated without a vaginal pessary at all, and by postural treatment alone? No doubt if we saw the case in its earliest inception the thing might be done ; but I have, myself, never seen a case at a sufficiently early stage to allow of this. On the other hand, I have known of retroflexion cases which have been treated by postural treatment (lying on a prone couch at all events) for a year, or upwards, and which have not been cured thereby. Still, it is possible that as diagnosis becomes more complete and early in its recognition of these cases, simple postural treatment may be found efficacious. At the present it too frequently happens that the affection is not recognised until it has been a year or two in existence.

The adjustment of vaginal pessaries is a matter of no little difficulty. I do not mean the actual operation or insertion, but the selection of the instrument to be used.

This seems the place for the discussion of the question as to the efficacy of vaginal pessaries in treatment of retroflexion. I have had the greatest success with them, and have cured many very severe cases by their aid, assisted, as above described, by use of the sound. Their action requires to be carefully watched and adjusted until the uterus is secured in a good shape and position, after which they give little trouble. The upper extremity of the pessary must carry the fundus up to its proper place. In order to do this it must be sufficiently long. The vaginal pouch behind the cervix is of course pushed up in accomplishing this, and I have hardly

ever met with a case where a sufficiently long pessary could not be inserted. The process often requires a little patience, and the pessary requires to be exchanged for a longer one from time to time until the object is obtained. The pessary must be carefully examined when *in situ* to ascertain if the work required is actually done, for sometimes it will be found that the pessary is simply embedded in the concavity of the flexion, and is doing not only no good, but actual harm. One practical direction may here be given. Sufficient care is often not given to the method of making the digital examination. If the patient be properly placed with the knees well drawn up, the finger can be made to reach nearly an inch higher in the vagina than would otherwise be the case, and thus the displaced fundus can be felt more readily. This is important in testing the action of the pessary. The sound can of course be used to test the position of the fundus; this requires to be done carefully, and the sound should be used nearly straight. In some cases it is found that the pessary requires to be carried so high up behind the uterus that it is difficult to reach the upper end with the point of the finger. It is impossible to do more than give the possible range of length and size of instruments, for each case has a law for itself as regards size and shape.

The pessary which I have above mentioned (the Albert Smith variety of the Hodge pessary) is very successful in getting over a difficulty I had frequently experienced before employing it. Retroflexion of the uterus is rarely exactly median, the fundus having generally an inclination to one side. Hence, the fundus is found often to slip to one side of the ordinary-shaped instrument. But when the instrument is made wide above, as in the Albert Smith pessary, this slipping of the fundus is prevented. Sometimes the width required to prevent such lateral deviation is considerable. It is difficult to introduce a wide instrument when the vaginal entrance is narrow, but in women who have borne children it is quite practicable. It is sometimes advisable to give the upper limb a slight extra projection to one side or the other.

A valuable modification of the retroflexion pessary is described by Dr. Gehrung,<sup>1</sup> consisting in giving the upper part of the pessary a central depression, so as to prevent the fundus slipping to one side of the pessary. The same idea is carried out in Dr. Gervis' pessary. Gehrung's pessary is shown in the accompanying figure (fig. 64) and is peculiarly useful in cases where the uterus

<sup>1</sup> *St. Louis Med. and Surg. Jour.*, August, 1878.

is really retroflexed a little to one side. The principle of this modification is excellent, and I have repeatedly employed it.

The pessary above recommended has a double action: it draws the cervix backwards and thus reduces the rotation, and it appears to be considered by some writers that the action of the Hodge pessary is limited to this. But it is not so, and I know from practical experience that by the direct pressure and lifting action of the upper limb of the pessary the fundus can be carried to the

FIG. 64.



necessary height, though to accomplish this a rather long pessary may be needed.

In some cases where the uterus is very large, a pessary of considerable size is needed (see p. 232), and unless one of sufficient size be used the uterus cannot be kept in place.

*Other modifications of the retroflexion pessary.*—There is no doubt that in some cases it is an advantage to have the upper part of the pessary of considerable thickness, as the pressure is better borne, and it acts mechanically better; say, the size of the little finger (about half an inch). An expedient which has been frequently had recourse to in cases where the pressure of the instrument against the fundus is badly borne, is to cover the upper end with a cushion containing water or air. Dr. Priestley's pessary (which is a stem acting from without) is arranged in this manner. I have occasionally had pessaries on the Hodge principle covered with such a cushion at the upper end. In Dr. Greenhalgh's pessary (see fig. 65, representing a medium-sized instru-



ment) a similar object is effected by an air-pad, or by use of the soft elastic material known as moc-main covered with india-rubber.

In a really troublesome case it would be best to have an instrument so padded, which would admit of being moulded into the exact shape required.

Practically I find that, generally, direct pressure on the fundus can be prevented; and when it cannot, by proper positional treat-

FIG. 65.



ment and other adjuvants, the necessity for a padded pessary can be often avoided, even when the fundus is very tender to the touch.

Cutter's pessary for retroflexion is one well worthy of trial in cases where continuous pressure cannot be borne. It is an ebonite pessary, shaped something like the upper part of a Hodge pessary, which in Dr. Thomas's modification of it is made rather thick; but the lower part is prolonged, in a sigmoid shape, and projects at the vulva. At this latter point it is curved a little back over the perinæum, and a tape is thereto affixed, curved upwards over the sacrum, and tied to a circular waist-belt. The pressure made on the fundus is thus capable of regulation from the outside. The advantages and the disadvantages of this

treatment are obvious enough. I have seen cases where the instrument would have been applicable with advantage, but personally I prefer other methods of treatment. In fig. 66 is shown Dr. Thomas's modification of the instrument.

FIG. 66.



*General remarks on the employment of the retroflexion pessary.*—It is sometimes the case that the pessary, though well fitted, can be tolerated for not more than a few hours. The uterus will not always bear to be carried at once to its proper position. Two courses are open: to lessen the pressure by using a smaller pessary, or to rigidly enforce the prone position; and both these courses may have to be taken at the same time. The pessary should be made to act as little by direct pressure on the fundus as may be, and the use of the sound takes it away from the pessary. The prone position and the knee-and-elbow position have the same result in a more or less complete degree according to circumstances. For these reasons if the uterus be tender to the touch, a pessary should not be employed unless care be taken by rest and suitable position to lessen as much as possible the direct pressure of the pessary on the fundus; and this is a great part of the secret of success in difficult cases.

It does not at all follow because the pessary does well for a considerable time that it will do so indefinitely. In fact, there comes a period in some cases when, the condition of retroflexion having been cured, the uterus is rotated *forwards* by the action of the pessary, and the retroflexion is changed to an anteversion or flexion. I have seen cases where much disappointment had been experienced in consequence of an apparent recurrence of symptoms, and where, on examination, this result was found to have occurred. It is more likely to happen in cases where the uterus is rather soft than under other circumstances. There are a few cases where the uterus is very soft, and where the change

from retroflexion to ante flexion occurs almost *at once* on application of a retroflexion pessary; but they are very rare.

It is difficult in some cases to say when the pessary can be safely left off. This involves the question as to the complete curability of retroflexion of the uterus. When pregnancy occurs, the pessary can be removed at four months, after which time there is little danger of recurrence. After pregnancy is over, the pessary will probably be again required (in about three weeks), if the distortion is of long standing. On the whole, it may be said that if the retroflexion has existed for two years it will probably be necessary to employ the pessary for nearly an equal time. And, speaking generally, it would seem that the duration of the disease regulates pretty directly the duration of the mechanical assistance the uterus requires. There are cases which are more speedily cured, but they are exceptional. Pregnancy certainly aids in the cure, but does not absolutely effect it. After long years' duration, a complete cure is almost impossible; though, by the expenditure of much time and patience, the uterus may ultimately be made to assume a correct form, even after six, eight, or ten years; but in such cases the very prolonged use of a vaginal pessary will be required.

It must be understood that the pessary above recommended has no fixed bearing against any part of the bony framework of the pelvis. Any pessary pressing against the pubic bones is badly adjusted, and will be likely to be mischievous. The pessary must be so fitted that it is embraced and kept in place by the vaginal canal itself, which embraces it and surrounds it. Ordinarily it is not necessary to have a broad base for the instrument, for the sigmoid curve which it possesses seems admirably to ensure its retention in the vaginal canal. The lower extremity of the pessary should therefore be just within the vulva at the centre of the aperture, and should not press against the rami of the pubes.

*Introduction of the retroflexion pessary.*—The patient must be well placed on the side, with the knees drawn high up. The instrument should be well covered at one end with cold cream or fresh lard. It should be held a little obliquely at the vaginal aperture, as it then passes in more readily. It is then gently inserted about half way into the canal. When arrived at this point the finger should be passed in behind it, and the upper extremity pushed sharply backwards behind the cervix. It then shoots rapidly into its proper position. It almost invariably happens that the instrument passes in *front* of the cervix uteri



instead of behind it if these precautions be not attended to, and it is hardly necessary to state that in such a position the instrument will do considerably more harm than good. After it is in its place it may be pressed firmly to make sure its pressure can be borne; and it is a good plan to make the patient cough or to strain downwards in order to test the question as to whether the pessary is so well adjusted that it will not escape. It is sometimes difficult to insert a pessary owing to tenderness or spasmodic resistance of the patient, without anæsthetic aid.

When the entrance of the vagina is narrow care is requisite to avoid bending the pessary, if made of copper and india-rubber, in the process of introducing it. A solid ebonite pessary is in such a case better, unless the operator is well skilled. It may be well to mention that the pessary is worse than useless if it be inserted with the concavity downwards instead of upwards. No one who has not studied the construction and objects of the instrument should attempt to insert it.

*Necessity for changing the pessary.*—A well-fitted pessary should require to be changed very rarely. The object of the pessary is to maintain the fundus in its proper place, and if it be taken away for purposes of cleanliness it should be again at once inserted, otherwise ground gained is unnecessarily lost. The pessary should be considered in the light of a splint, the action of which should be continuous. On no account should it be removed at the catamenial period. If well-fitted its presence will at that time be very necessary and useful. If it is thought serviceable to remove the pessary for a few days the patient should not be allowed to move out of the horizontal position. For purposes of cleanliness it is sometimes desirable to employ daily injections of warm water with a little disinfecting fluid when the pessary is constructed of india-rubber; but when of ebonite, injections are generally only required just after the monthly period is over. Change of the instrument is of course required if it does not fit, or when circumstances require an instrument of a different size. In practice I have found that patients go on comfortably wearing the same instrument sometimes for years together. While writing this I receive a letter from a patient whom I have not seen or heard of for three years, and who writes to say that she has been perfectly well all the time, and wishes to know what to do, as pregnancy has now occurred. It should be the rule to take note of the condition of things at stated intervals; not more than a year certainly should elapse without proper examination and removal

of the pessary; though in my experience I have not met with any inconvenience resulting from uninspected long protraction of the use of vaginal pessaries.

*The simple ring pessary for the treatment of retroflexion.*—Some years ago Dr. Meigs introduced the ‘ring’ pessary for treatment of retroflexion, and it has been largely employed for the purpose. The basis is a piece of watch-spring. The instrument, as now a good deal employed by Dr. John Williams and others, is made in various sizes and covered thickly with india-rubber. This pessary admits of easy introduction. Its merits, in my opinion, are that it is readily introduced, that it acts fairly well, and is borne with less difficulty, owing to its elasticity, than a more rigid instrument. Its defects are, that it is incapable of carrying the fundus up beyond a certain limited distance, and that the ring must be a large one to do very much in this direction; involving thereby undue stretching of the vagina transversely. It is, I have found, most useful as a temporary expedient in cases when a more thorough treatment has to be postponed, and in a few instances it is superior to other pessaries. When thickly covered with india-rubber, this pessary acts somewhat after the method of the old-fashioned disc pessary.

*Dilatation and moulding of the uterus as a cure for reiroflexion.*—Some years ago Dr. Moir of Edinburgh suggested and practised a method consisting of dilating the uterine canal by tents and the subsequent wearing of a stem pessary; the object being to overcome the resistance and flexion by full dilatation in the first place, and use of the stem afterwards to maintain the straightness. The method is undoubtedly sound in principle, and could be employed in chronic obstinate cases with advantage (see later chapter on ‘Methods of Dilating Cervix Uteri’). Schultze<sup>1</sup> has more recently adopted the plan of dilating first by means of tangle tents, and afterwards injecting carbolic acid or dilute iron solution to promote contraction. He uses also a vaginal pessary of figure of eight shape to help in restoration. It appears that he has employed the method in a large number of cases without bad result.

*The stem treatment in cases of retroflexion.*—It has already been stated (p. 199) that as a rule the stem treatment is best adapted for antelexion cases. I have occasionally treated cases of retroflexion with the aid of stems, and successfully; but in the large majority of cases I have found the ordinary plan the best.

<sup>1</sup> *Centralblatt f. Gyn.*, No. 3, 1879.

In the last edition of this work was figured an instrument I have used for the purpose. It consists of an ebonite stem fitting into a vaginal pessary on the Hodge principle, so that it has a double action. My own impression is that the stem pessary should, if adopted, be used in conjunction with the vaginal pessary, as shown in the annexed figure. It is essential that the stem be kept thoroughly in the canal of the uterus and not allowed partly to escape, also that it should not touch the top of the

FIG. 67.<sup>1</sup>

fundus, and it is certainly less likely to wound the uterus if the fundus be at the same time supported from behind by the aid of the vaginal pessary.

*Incision and immediate rectification.*—It has been proposed to incise the uterus from within in order to relieve the flexion by an operation which is a modification of one which has been largely practised by Dr. Marion Sims for stricture of the uterine canal.

The latest phase of this procedure is an operation described in the 'American Journal of Obstetrics,' June 1876, by Dr. Len-

<sup>1</sup> Fig. 67 shows a combined stem and Hodge pessary. The shape of the Hodge pessary in the above figure is not the best that could be devised; the Albert Smith type is best modified according to the requirements of the case.



necker of Chicago, on 'The Surgical Treatment of Primary Retroflexion of the Uterus.'

He appears to speak only of retroflexion occurring before marriage. The patient is placed in lithotomy position; he then incises the cervix with scissors, front and back; then with *narrow* knives incises the uterus up to fundus *laterally* and *anteriorly* (three incisions), the knives, three in number, being of peculiar shape, the handles bent and adapted to curve of canal. After sponging with iced water, cotton is inserted soaked in carbolic acid to cauterise the incision. This cautery is repeated in 48 hours after use of a two-bladed dilator; then repeated every third day till twelfth; then once a week for six weeks. Ten days after operation a modified Hodge used for eight to ten weeks.

He has operated in thirteen cases; in all complete cure; in three cases pregnancy speedily followed. Of latter: case 6, æt. 19, married 1 year; case 10, æt. 22, married 2 years; case 11, æt. 22, married 6 months.

It is stated that all the cases were cured, and that in three pregnancy speedily followed, but as the ages of the three latter were respectively 19, 22, and 22, the inference is that the retroflexion was not of long standing, and could have been readily cured by less severe procedures.

I have now entirely relinquished the use of the air ball and stem pessary described in the last edition of this work.

*Radical operation.*—Here may be mentioned an operation performed by Koeberlé in Strasburg, March 27, 1869, for the radical cure of retroflexion by gastrotomy, and fixation of the uterus to the anterior abdominal wall by means of the broad gamment, which, being brought forward, was fastened to the edge of the abdominal wound. Dr. Schetelig, who describes the operation,<sup>1</sup> states that the patient recovered, and the displacement of the uterus was cured. The patient's age was twenty-five. The duration of the malady was  $2\frac{1}{2}$  years. The operation is a curiosity and the procedure ingenious, but it obviously involves a confession of deficient mechanical resource of the less dangerous kind.

*Oophorectomy* (Battey's operation).—In cases deemed otherwise incurable, the operation known as Battey's operation has been in some instances practised. Such an operation can only be

<sup>1</sup> Dr. Schetelig, *Ueber eine Radicaloperation zur Beseitigung der Retroflexio et Retroversio Uteri*; *Sep. Abdr. u. d. Centralblatt f. d. med. Wissensch.* 1869, p. 27.

required or considered justifiable in very extreme cases. My own experience is, to the effect as I have already stated, that with time and patience even the worst cases are curable. It is possible that there may be cases in which a long course of treatment would not succeed, but I have not as yet met with such cases. This subject will be again referred to in the chapter on 'Diseases of the Ovaries.' Here I may say, however, that some of the published records of cases of oophorectomy in which chronic retroflexion existed appear to me to offer conclusive evidence that the uterine displacement might have been cured, and the operation thus rendered unnecessary, by further and more patient efforts to cure the retroflexion of the uterus.

## CHAPTER XXI.

## ANTEFLEXION AND ANTEVERSION OF THE UTERUS.

IMPORTANCE OF ANTERIOR DISPLACEMENTS AND FLEXIONS CONSIDERED.—Frequency with which these Conditions give rise to Uterine Dyskinesia—Great Frequency of this latter Symptom as observed in Practice.

DEFINITION.—Difficulty hitherto Experienced in Definition—Owing to Existence of slight Anteflexion in normal Uterus—Owing also to Misapprehension of true nature of Congestion of Uterus associated with Anteflexion—Author's Definition: Exceptional Cases when the Definition does not apply—Use of the Finger in making the necessary Exploration—Precautions to take.

FREQUENCY.—Hospital and Private Practice compared—Single or Married—Age of 488 Cases in Private Practice.

ETIOLOGY.—Predisposing Causes—Discussion of Schultze's views as to Movement of Uterus when Bladder is Emptied—Author's Dissent from Schultze's Conclusions—Importance of Softness of Uterine Tissues and want of Rigidity as Causing Anteflexion—Previous Pregnancy—Rupture of Perinæum—General Physical Weakness and Prostration—Special or Exciting Causes: Traumatic Causes, their great Frequency—Previous Attacks of Parametritis—Schultze's 'Pathological Anteflexion'—General Perimetritic Fixation result of Anteflexion of long standing.

THE anterior displacements and flexions of the uterus are real and serious ailments, although there are not wanting authorities who dispute this view.

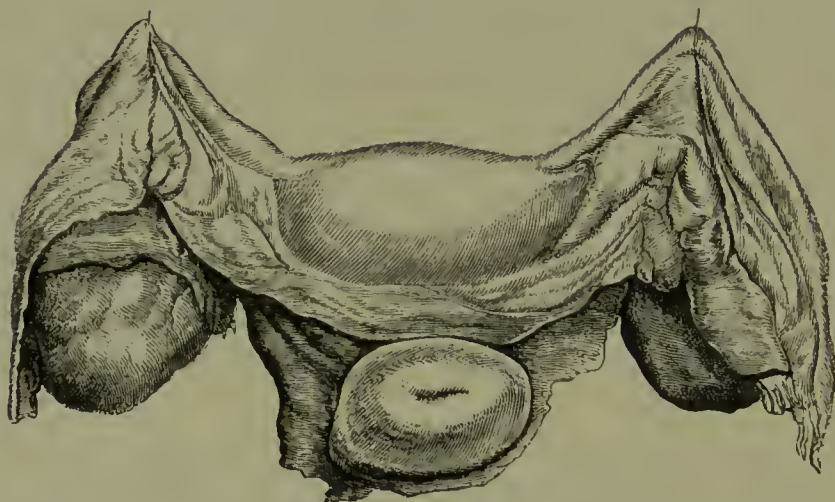
At the present day, however, many gynæcologists of repute recognise the importance of anterior displacements of the uterus. The growing feeling of the importance of these maladies is shown in the fact that very numerous mechanical appliances have been recommended for their relief.

In reference to the question as to the 'importance' of these affections it will be found on considering the matter that the question really at issue, but which many who have discussed it have not thought it worth while even to allude to, is this: Taking the case of a patient who is suffering from symptoms referable to the uterus, what is the actual explanation of the pain or discomfort, or particular symptom, which induces the patient to seek medical advice in such cases? Having for many years systematically endeavoured to procure an answer to this question in every



individual case which has come before me, I have arrived at the conclusion that anteversion and anteflexion are maladies having a very high degree of 'importance.' The general considerations which have led me to arrive at this conclusion may be stated as follows :—

In the first place, attention must be directed to the great frequency with which patients coming to consult us complain of pain or discomfort of various kinds *on motion*. In the chapter on 'Symptomatology' this subject has been fully discussed. The analysis of this symptom, which I have designated 'uterine dyskinesia' shows clinically in the most conclusive manner its dependence on an exaggerated motion or mobility of the uterus in one direction or another ; and a multitude of observations extending

FIG. 68.<sup>1</sup>

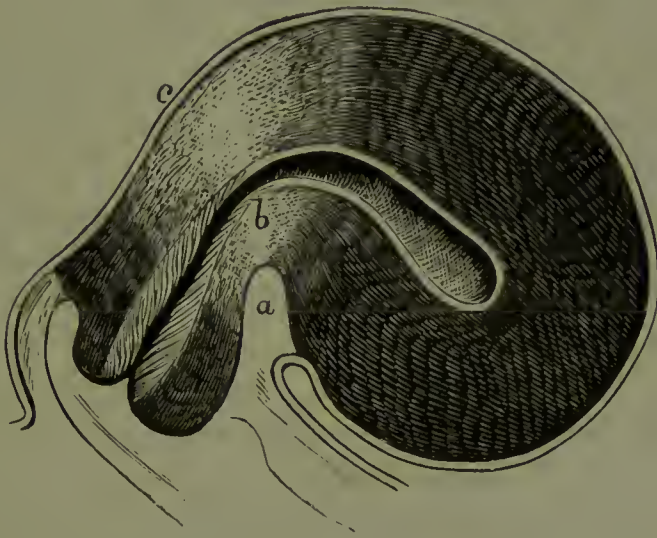
now over many years has proved to me that the generalisation is a sound and a true one. Further, it can be abundantly shown from clinical evidence that sufferings coming under this head constitute the large proportion of the complaints of patients seeking advice. Here we have therefore two points of importance : (1) That certain mechanical motions of the uterus give rise to pain and suffering ; and (2) that such mechanically produced pains constitute the greater part of the affection present. For, in the patient's estimation at all events, what she feels is to her the disease.

In the next place, an extended observation has shown that there is a very close connection between presence of certain degrees of anteversion or flexion, and presence of marked uterine dys-

<sup>1</sup> Fig. 68 shows a very marked case of anteflexion. The drawing represents a specimen from University College Museum.

kinesia, and that the latter is almost invariably associated with the former (unless in the cases where the flexion or displacement is in the backward direction). A definite symptom is thus found to indicate so generally a definite condition of the uterus that it is obviously a relation of cause and effect.

A further set of proofs consisted in observation of the effects of rest, maintenance of the uterus in its proper shape and position, &c., in removing or alleviating this particular set of symptoms. This effect is most marked, and here again observation, repeated over and over again, has shown that these symptoms of which the patient complains so much give way to a treatment which is essentially a mechanical one; and cease in direct proportion to the success of the measures taken for preventing and restraining the

FIG. 69.<sup>1</sup>


abnormal movements of the uterus, and for restoring the organ to its proper shape.

It has thus by observations, repeated day after day, for some years past, and which may in one sense of the word be termed ‘experimental,’ that conviction has followed as to the real and substantial influence exercised by anteversion and flexion of the uterus in the production of the pain, suffering, and discomfort of various kinds of which patients so commonly complain.

The same reasoning and the same conclusions apply to retroversion and retroflexion, and the foregoing statement concerns the posterior equally with the anterior displacements of the uterus. The reason for making the statement, in this place, is that while retroflexion and retroversion are admitted, with very few excep-

<sup>1</sup> Fig. 69 exhibits acute anteflexion of the uterus in profile, sectional view, become chronic.

tions, to be maladies, it is not so in regard to anteversion and anteflexion ; and I desire to point out how and why it is that I have been led to regard the latter as substantial and important affections.

It is not intended, in the foregoing remarks, to imply that 'uterine dyskinesia' is the only severe symptom present in cases of anterior flexion. Other symptoms are important also, but they are better known, and duly recognised as such, by those who have given attention to the subject.

*Definition.*—It is now necessary to give a *definition* of anteflexion and anteversion. From what has already been said, it will have been rendered evident that a definition is necessary.

The question resolves itself into this : What degree of anterior flexion or anterior version is to be considered abnormal ?

The particular point at which I find myself at issue with some writers and practitioners of repute is in regard to the importance of the lesser degrees of anterior flexion and version, and their capability of producing symptoms of a troublesome character. The basis of my conclusion is, as already stated, a prolonged series of clinical observations on this subject.

With reference to the *more severe degrees of anteflexion and version* the number of scientific observers who recognise their importance is very considerable. There are only a few left who still deny the practical significance as diseases of the more severe cases of anterior displacement. As regards the importance of the less severe degrees of anterior flexion and version the number of converts still to be made is more considerable.

There can be no doubt that the principal cause of the reluctance to recognise the anterior displacements as diseases, is the notion that inasmuch as the uterus has a slight normal curvature and inclination forwards, further degrees of that curvature and inclination forwards cannot have any practical importance. The prevalence of this notion is and has been so great that few have taken the trouble to differentiate the various degrees of anteflexion and anteversion.

This is not the only reason for the neglect which the subject has received. Another reason has been the complication of congestion of the uterus so frequently met with in these cases, which complication has received exclusive attention, while the displacement has been either not recognised at all (as is most commonly the case), or, if recognised, has been regarded as an affair of quite secondary importance. Having had frequent opportunities of meeting practitioners in consultation in cases of this kind, I have



formed the conclusion that one reason why so little is known as to the frequency and effects of anterior displacements is that the very simple and easy exploration of the condition of the uterus, by means of a digital examination, is little practised. Over and over again it has happened in cases brought to me for consultation that marked anteversion or flexion has existed and remained undetected for this reason and this reason alone: the condition has been unrecognised simply because it has not been looked for. The too exclusive use of the speculum and the too general concentration of attention to the condition of the os uteri is responsible for this too common omission of the digital examination.

Thus it happens that these affections have been comparatively neglected, sometimes because they have not been looked for, sometimes because, when known to exist, they have been misinterpreted. We may now proceed to the definition—which I would give as follows:—

*Abnormal anteflexion or version exists when the fundus of the uterus can be felt by means of the finger introduced as far as the middle of the proximal phalanx, the patient lying on the side and the knees drawn up in a favourable position for such examination.* For the application of this definition it is to be assumed that there is no tumour or considerable enlargement of the uterus present.

The above definition covers by far the majority of cases, but not all. For in some exceptional instances the uterus lies rather high and yet it is much and abnormally anteflexed.

Neither does it cover those cases where the uterus is excessively mobile and the fundus retreats before the point of the finger, for in such cases the condition might be overlooked.

Neither does it provide certainly for the recognition of anteflexion in cases where the uterus is excessively soft, for the uterine fundus under such circumstances may not be easily felt by the finger, though the uterus is undoubtedly in a state of anteflexion.

Neither does it provide for recognition of cases of anteflexion with retroversion, to be explained further on. It will be found on practising the investigation above described that the lower border of the triangular ligament corresponds to the joint between the proximal and the second phalanx of the finger. It is generally easy to introduce the finger as far as this by placing the patient in a proper position. I consider it necessary to insist on the observance of this latter condition, because the drawing up of the

knees enables the observer to introduce this finger nearly an inch farther than can be done when the patient is in any other position.

Theoretically the condition of the bladder might be supposed to modify the results of the examination. But practically it is found not to be the case, for if abnormal anteflexion or -version be present the fundus of the uterus is generally, though not invariably, always within reach as above described.

To come within the above definition the uterine body must have become materially flexed or rotated forwards from what has been described in some of the former pages (see page 128) as the normal position of the uterus, or the uterus must have as a whole descended much lower in the pelvis than usual.

It will be found that, without using any force, it is generally possible easily to introduce the finger to the extent of three inches, and when the fundus is easily reached, and its outline definable within this distance of the ostium vagina, a displacement exists.

The question as to the normal position and normal motion of the uterus has been already fully discussed at page 131.

The range of normal anterior motion which I would assign to the uterus is represented in the accompanying drawing (fig. 70). The labia majora offer a projection externally, and a portion of the three inches constituting the available length of the finger is occupied in traversing the vulva, generally as much as one inch (in cases of obesity more than this), so that only two inches are left for the exploration of the vagina proper. It is possible to introduce the finger farther than this by exercising some degree of pressure, but the above definition applies to ordinary exploration, without exercise of undue pressure. (See fig. 8, showing the line of direction of a digital examination.)

When the motion of the uterus does not exceed what has been above laid down as the normal limit, the space left between the uterine fundus and the pubic symphysis is as nearly as possible one inch and a half. When the fundus encroaches on this space, therefore, the position is abnormal, unless it can be accounted for by increased size of the whole organ. This latter condition would obviously have to be eliminated.

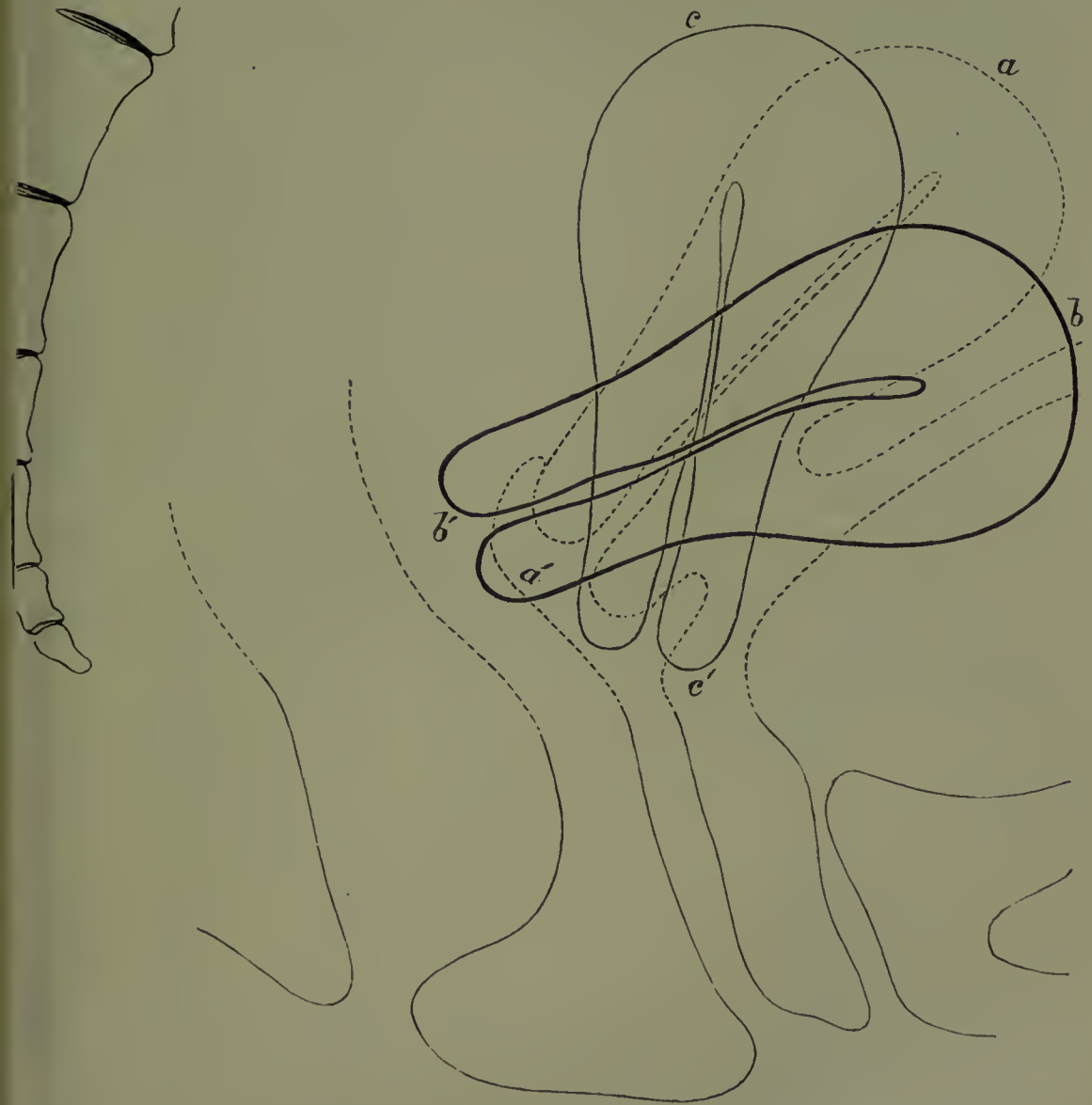
Anterior displacement beyond the limit mentioned would bring the fundus within the reach of the finger, introduced to the medium degree, as above described.

There are cases in which circumstances prevent the recognition

of the fundus by the digital examination, some of which have been mentioned. It must not, therefore, be concluded absolutely, because the fundus cannot be detected by the touch in the manner directed, that no anterior displacement exists.

It is to be remarked that the directions given suppose the patient to be lying on the side. It is obvious that this is not the

FIG. 70.



most favourable position for the detection of a slight anterior displacement. A slight anterior displacement would no doubt be more readily detected by the touch in the upright position. But this consideration is in favour of the definition as above given, for the patient being in the lateral position, a too unfavourable view of the case would not be so likely to be given by the digital examination. In severe cases of anteflexion and -version, the



uterine fundus is very readily reached, whether the patient be standing or lying on the side.

*Frequency.*—The subject has already been mentioned at page 140. Here it may be stated that of 1,200 hospital patients (1865–69), 184 were cases of anteflexion or -version (cases of retroflexion or -version, 112). In six years' private practice (1873–79), out of 1,140 cases 488 were cases of anteversion or -flexion (cases of retroflexion or -version, 180).

The above figures show that while about one-seventh of hospital patients were affected with anteflexion or -version, the proportion in private practice was much greater—viz. about two-fifths of the whole number. It is to be remarked that the large number of cases of anteflexion and -version in private practice is partly to be accounted for by the circumstance that many such cases have been specially sent to me to be treated.

Frequency of anteflexion, &c., and retroflexion compared. The hospital practice results given above apply to that class of patients alone, giving 184 anteflexion as against 112 retroflexion. The private practice results give 488 cases of anteflexion against 180 of retroflexion.

*Single or married.*—Of the 488 cases of anteflexion or -version in private practice, 360 were married and 128 single.

*Age.*—The following are the statistics of six years' private practice :—

Age	Single	Married : fertile	Married : sterile
16 . . . . .	1	0	0
17 . . . . .	0	0	1
18 . . . . .	1	0	0
19 . . . . .	3	0	1
20 . . . . .	4	0	2
20–25 . . . . .	26	20	27
25–30 . . . . .	36	65	41
30–35 . . . . .	34	62	22
35–40 . . . . .	11	38	18
40–45 . . . . .	6	20	10
45–50 . . . . .	5	9	2
50 . . . . .	0	5	0
Age not stated . . . . .	1	13	5
	<hr/> 128	<hr/> 231	<hr/> 129
	<hr/> 488 <hr/>		

#### ETIOLOGY.

*Predisposition.*—There can be no doubt that there is what may be termed a special predisposition to anteflexion and -version

in the *natural slight inclination of the uterus forwards*, and in the fact that there is normally a very slight anterior curvature of the uterine canal. Aided by its own natural firmness and rigidity, and supported to a certain extent by the moderately distended bladder, the position and the shape of the uterus are in a state of health preserved.

The relations of *varying conditions of the bladder* to the *normal* movements of the uterus have been considered at p. 136. Here it is necessary, however, to discuss the matter further, as it

 FIG. 71.<sup>1</sup>


has a considerable bearing on the subject now under deliberation. In opposition to the views of Schultze<sup>2</sup> I would repeat that the results of my observations do not sustain his view that the *healthy* uterus becomes decidedly anteverted and slightly flexed when the bladder is empty. I believe, on the contrary, that the space in the pelvis derived from the emptying of the bladder is ordinarily

<sup>1</sup> The above drawing is Schultze's representation of what he considers to be the normal outline of the uterus (nulliparous), after emptying of the bladder and rectum. (*Arch. f. Gyn.* 8. 142.)

<sup>2</sup> *Arch. f. Gyn.* 8. 134.

filled by the descent of the intestines, and that the uterus retains its normal (slightly curved forwards) shape under such circumstances. I therefore dispute the occurrence of what Schultze terms normal anteflexion and -version, at all events to the degree described by him. It seems probable that the case or cases from which Schultze took his drawings of so-called normal anteflexion would only truly represent what may be observed in cases where the uterus is soft and unduly pliable, but then I should deny the applicability of the term 'normal' to such cases. This author, whose able memoirs on the subject may be consulted with advantage, appears not to have noticed what I consider to be a most important factor—namely, the softness or hardness of the uterus. Assuredly this must be taken into account in any attempt to lay down a law as to the definition of normal and abnormal anteflexion.

In the chapter on 'Etiology of Flexions' *softness of the uterus* is mentioned as a powerfully predisposing condition. Here these observations apply with peculiar force. A very extensive observation has convinced me that it is a factor of the extremest importance in bringing about anteflexion and -version. What this undue softness of the uterus means has been discussed in a former chapter (see p. 66). This want of tone, want of rigidity and resistance, on the part of the uterus, places it at the mercy of external influences of a mechanically disturbing character. A year or two of deficient or insufficient feeding suffices to produce decided uterine softness, and ordinary exertions may then prove too much for the stability of the uterus. The acquired softness, the natural inclination of the uterus forwards, a slight exertion, all coming together, have then the result of bringing about mischief of a decided character. My knowledge of softness of the uterus as a predisposition to flexion was the result of observation of cases of anteflexion, and I had been familiar with this softness as a frequently present condition long before it occurred to me to give a satisfactory explanation of it.

Previous pregnancy is responsible for innumerable cases of anterior displacement. It acts as a predisposition by loosening the attachments of the uterus, leaving it in a soft, bulky condition; and under these circumstances it readily gives way when the patient begins to move about, especially if there be added the debilitating influences of a deficient dietary during child-bed. In some cases of abortion the malady begins with the abortion and becomes firmly established when the uterus is allowed to set and become contracted in its distorted condition.



The reader is referred to the statistics given at p. 186 in reference to the influence of a previous pregnancy in bringing about a secondary sterility.

Rupture of the perinæum in some cases favours the occurrence of anteflexion and -version. I have seen several cases in which the perinæal injury seemed to have been the starting-point of the displacement.

Lastly, one of the most common of the predisposing causes of anteflexion and -version is general physical weakness and prostration. Of such typical instances are the weakness produced by typhoid fever, measles, scarlet fever, and the like. I have in practice seen several cases where the malady began unmistakably on getting up from a severe attack of fever, and some of the most severe cases of anterior displacement I have witnessed have been cases of this kind. It is not, however, necessary that the physical exhaustion should proceed from fever. There are many other depressing influences which might be mentioned. They mostly act by reducing the tone of the uterus, softening its tissues, and by virtue of that alteration predisposing to distortion of the organ.

*Special or exciting causes of anteflexion.*—The *general* causes of flexions have been already discussed, and the reader is referred to page 143 for information on this subject.

The question as to the special causes of anteflexion and -version is to some extent elucidated by reference to the details given in the table at page 144. Traumatic influences are shown by the details there given to have been very seriously operative in the cases which have been analysed, and which have occurred in six years' private practice. Thus, out of 257 cases of single or sterile patients affected with anteflexion, the flexion was distinctly traced to what may be termed traumatic influences in nearly 100 of those cases. The table in question shows, however, that such traumatic causes sometimes produced a forward, and sometimes a backward displacement, so that it does not appear that a particular accident or mechanical injury is more likely to produce one form of uterine displacement than another.

The evidence afforded by the critical investigation of cases is most remarkable in showing the very great influence of mechanical disturbing agencies in the production of anteflexion or -version. At page 145 is given a list of the possible exciting causes of flexions. In regard to the particular form of displacement now under discussion one or other of these causes will generally be found to

have been in operation in the cases coming before us. Repeatedly it has happened to me to have been foiled for a time in ascertaining the particular cause—the accident or strain, or whatever it might be—which immediately preceded the coming on of the symptoms; but where, a little later on, the patient has recounted an incident which she had at first forgotten, and finally the whole history of the transaction could be pieced together, showing most unmistakably that a special mechanically disturbing cause was the starting-point of the evil.

It is to be remembered that while a single accident or severe strain has evidently been the cause in a number of cases, there are many others in which the application of the cause has been spread over a considerable time, the uterus having been displaced by the continued—*i.e.* daily—operation of a particular exciting cause. Daily severe walks, daily standing for many hours in succession, as in the case of shopwomen, severe and long-continued standing while nursing a sick relation,—these are instances of the kind alluded to. Riding on horseback, use of a sewing-machine, are other causes of a like character—the mischief being done not necessarily at once, but by slow degrees.

There is no doubt that marriage is the cause of anteflexion in some instances: the uterus becomes displaced as a result of the act of intercourse in some exceptional cases.

Some few cases of severe anteflexion and -version arise from exertion, combined with a chill received during menstruation, which I attribute to the occurrence of exudation or thickening around the uterus, result of the menstrual suppression, whereby the uterus becomes more or less fixed in a distorted shape.

The relation of inflammatory exudations, effusions around the uterus, parametritis, &c., to anteversion and -flexion, has been the subject of a paper by Schultze.<sup>1</sup> This author believes that a principal cause of what he terms ‘pathological anteflexion’ of the uterus is rigidity and shortening of the Douglas folds behind the uterus, which rigidity is the result of chronic atrophic parametritis affecting the connective tissue in the Douglas pouch. Schultze states that he has very frequently found this posterior fixation along with anteflexion. There is no doubt that undue shortness of the Douglas folds might produce such an effect, but it is another question whether the occurrence is at all common. Here, again, it may be suggested that in the cases alluded to by Schultze, the really abnormal condition present may have been presence of

<sup>1</sup> *Archiv. f. Gyn.* 8. 1.

a very soft anteflexed uterus, and that the supposed posterior fixation was only what is normally present. Schroeder and Müller (of Berne) contest the accuracy of these views of Schultze. I have in some few instances met with a condensed resisting condition of the connective tissue around the Douglas pouch, in cases of anteflexion, where pelvic cellulitis had been present; abnormal shortening and rigidity of the Douglas fold is, according to my experience, very rare.

It is, however, not uncommon to meet with what may be termed parametric exudation and hardening around the uterus, so far as can be explored by the finger, in cases of anteflexion and version of a chronic character. Such hardening and contraction of the cellular tissue acts as a *fixation* of the uterus, and indeed offers not seldom difficulty in the elevation and straightening of the uterus. The exudation in question is not, however, the cause of the flexion and displacement, but precisely the opposite—it is the result of it. Pelvis cellulitis may give rise to a localised effusion which may push the uterus quite away from its proper position to one side or the other, or backwards or forwards, and the organ may be thus pinned down as it were by such exudation, though instances of this kind are not common. This subject will be again considered in describing the complications of anteflexion and -version.



## CHAPTER XXII.

ANTEFLEXION AND ANTEVERSION OF THE UTERUS—  
(*continued*).

VARIETIES.—1. In Degree of Flexion; 2. Degree of Rotation of Uterus; 3. Degree of Descent of Uterus as a Whole; 4. Rigidity of Uterine Tissues—Various Combinations of these possible, hence Infinite Differences in Cases—Three Principal Degrees of Flexion—Some Leading Types Described—Various Conditions of Cervix—Anteflexion with Posterior Rotation—Severe Cases in which the Uterus is very low down, compressing the Rectum—Variations in Rigidity of Uterine Tissue and Connections—Clinical Features of Different Cases—Illustrative Cases given—Degree of Congestion present.

COMPLICATIONS.—Congestion, Accessions of Acute Congestion—Distension of Cavity—Adhesions—Cystocele—Cystitis—Constipation.

SYMPTOMS.—Uterine Dyskinesia—Illustrative Facts in regard to this observed in Thirty-three 'Fertile' Women and in Thirty-five Single Cases—Spontaneous Pain—Tenderness of Uterus to touch—Other Abnormal Sensations—Dysmenorrhœa, Menorrhagia, Leucorrhœa, Amenorrhœa—Sterility—Abortions—Dyspareunia—Reflex Nervous Symptoms—Symptoms referable to Bladder; to Rectum.

DIAGNOSIS.—Various Difficulties—Method—Use of Sound—Precautions and Difficulties in Introducing it in Different Cases.

## VARIETIES.

In the chapter on 'Retroflexion and -version' a certain method of classification has been adopted which may with advantage be followed so far as the circumstances admit in regard to anteflexion and -version. Reasons have been there (see p. 215) given for using the word 'rotation' instead of 'version,' and the same reasons render it convenient to employ this term in describing the varieties of anteflexion and -version.

Cases may be classified according to

1. Degree of flexion—first, second, or third, as the case may be; also the variations in the position of the flexion.
2. Degree of rotation.
3. Degree of descent of uterus as a whole.
4. Degree of resistance offered by the uterus itself to unbending or replacement.
5. Presence or absence of (*a*) congestion, (*b*) enlargement.

(For some other variations see general classification of flexions at p. 153.)

Seeing that in practice the several factors above detailed are combined in different ways in different cases, it becomes evident that infinite varieties may be observed. It is a conclusion to which all who study the subject practically will come, that hardly two cases are found exactly alike. The appreciation of this fact is necessary for success in the treatment of these cases, every case having peculiarities of its own. The above classification will serve to indicate the points to which attention must be directed in obtaining a definite and broad view of the particular case before us.

Anteflexion of the uterus, according to Dr. Emmet, affects

FIG. 72.



generally the cervix of the uterus, rarely the body. My own idea on the subject is not in agreement with this view, although it is no doubt the fact that many cases are observed in which the flexion is below the internal os uteri.

What may be termed the typical varieties of anteflexion and -version will now be described.

The most simple case is that in which the uterus is flexed to first degree, the fundus too far forward, and the os uteri a little nearer the sacrum than natural (fig. 72). With this is frequently associated the first degree of rotation forwards (the latter not

shown in accompanying drawing); a second degree of anteflexion is shown in fig. 73, together with a slight amount of rotation. This may be associated with a much more severe degree of rotation than that shown in the drawing.

FIG. 73.



A third and very severe form of anteflexion is shown in fig. 74, together with some degree of rotation.

FIG. 74.



The curve offered by the uterine canal in cases of anteflexion is, according to my experience, a gradual one; there is no sudden



alteration in the direction of the canal: such a sudden change in direction is not possible under ordinary circumstances, the bend offers degrees as above stated—first, second, and third—but the bending is distributed over three-quarters of an inch of the canal, more or less, in ordinary cases. The figs. 73 and 74 represent this. The actual centre of the bend may be higher or lower than the internal os uteri.

Rotation is present in very different degrees in different cases. Thus we may have an extreme degree of rotation with little or no anteflexion. Such cases have been termed anteversion pure and simple. They are by no means common; the uterus lies almost parallel to the vaginal canal; the fundus is very near to the

FIG. 75.



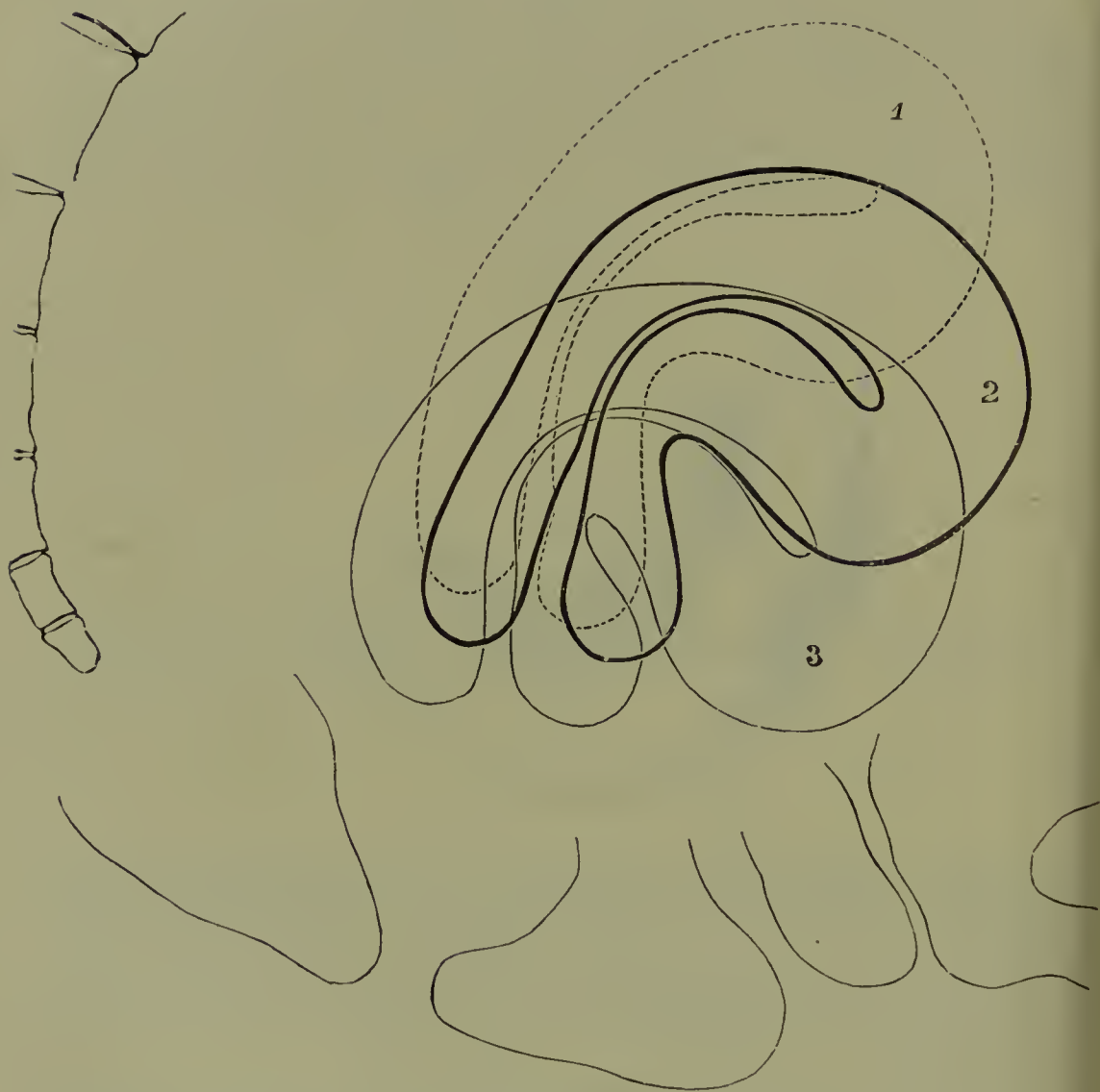
symphysis pubis, and the posterior wall of the bladder lies in close coaptation to the base of the bladder, with no appreciable interval. Such a case is shown in fig. 75. The os uteri is reached by the finger with great difficulty, as it lies so far back in the hollow of the sacrum.

As a rule rotation is not very great when the degree of flexion is considerable, and in this respect there is a difference between cases of anteflexion and cases of retroflexion; the bladder offers an obstacle to very considerable anterior rotation. Fig. 76 shows three degrees—(1) first degree of anteflexion, (2) second degree, (3) third degree—of flexion, together with the more usual accompanying degrees of rotation.

The condition of the vaginal part of the cervix differs very much. In some cases it is nearly straight and the os directed very distinctly backwards; but in many instances it is bent forwards,

so much so indeed that the opening of the os uteri does not look towards the vaginal outlet but upwards and forwards. Thus we sometimes meet with anteflexion in the third degree with the whole uterine canal having the form of a parabolic curve, the flexion as great as it can be. This kind of case is more often met with in young women who have had no children: the cervix has a

FIG. 76.



conical shape and is frequently unduly elongated. This considerable bending of the vaginal part of the cervix is, I believe, due (as Dr. Emmet remarks) to the repeated forcing down of the uterus against the vaginal floor, whereby the cervix becomes bent and turned upwards. It constitutes a condition very troublesome from the severity of the symptoms, and difficult of cure. (See figs. 77, 78, and 79.) Some observers regard cases similar to those just described as 'congenital.' Thus Dr. Roper<sup>1</sup> says:—

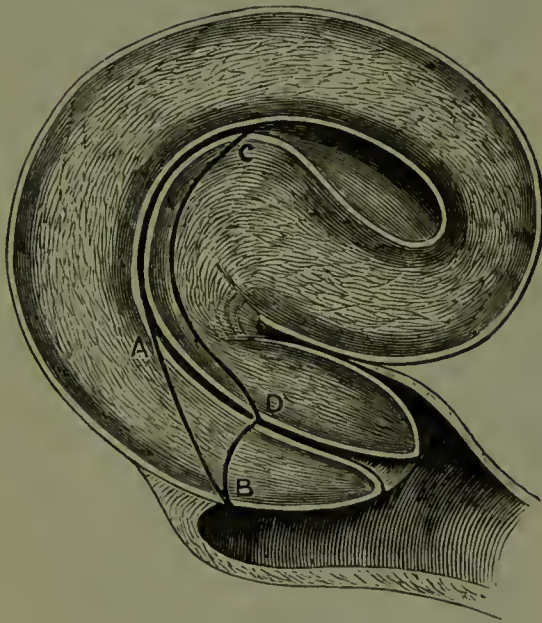
<sup>1</sup> *Obst. Trans.* vol. xx. p. 304.

1. A certain class of cases of ante flexion 'are congenital and are not the result of any pathological change in the uterine texture, but are malformations of the whole or part of the organ.'

2. 'Acquired flexions generally are associated with some pathological change in the uterine tissue, whether it be one of hypertrophy, atrophy, or degeneration.'

He proceeds to explain that in the first class of cases 'there is an antecurvature of the uterus running from the top of the fundus to the point of the cervix, extending the whole length of the organ. There is no point on either the cervix or body at which a flexion exists as in the pathologically flexed organ' (*loc. cit.* p. 305).

FIG. 77.<sup>1</sup>



The context shows that Dr. Roper only admits existence of 'flexion' when the cervix and the body of the uterus are separated by 'an intervening portion of softened tissue.'

And when he finds that the uterus is uniformly solid and rigid, mere curvature does not for him constitute flexion. But it is to be remarked that the consistence of the uterine tissues varies: the uterus is generally in a soft condition when the flexion occurs, but it may and frequently does subsequently become firm and hard, although still preserving the flexed condition. Dr. Roper's definition of flexion therefore cannot be accepted, and the cases he would describe as cases of 'congenital antecurvature' are, in my

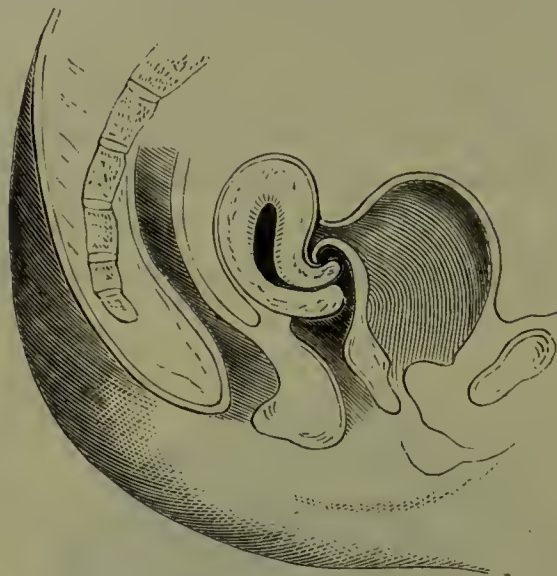
<sup>1</sup> Fig. 77 is Dr. Emmet's drawing of a severe case of ante flexion, the dark line A B C D showing the extent of incisions made in his operation for the cure of this affection.



opinion, for the most part cases in which the flexion has arisen in the manner above pointed out.

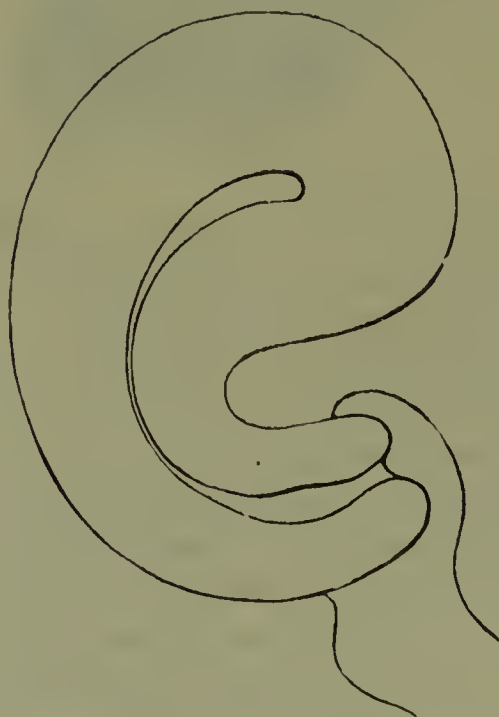
A peculiar variety of severe flexion of the cervix is shown in

FIG. 78.



figs. 78 and 79; here the uterus is anteflexed in about the third degree, the cervix elongated and directed forwards and a little

FIG. 79.



upwards. It may be termed severe anteflexion of the uterus *with posterior rotation*. The history of such cases is as follows. Ante-

flexion to a severe degree first occurs, and persists for a considerable time. The uterus hardens in its anteflexed condition, but subsequently undergoes posterior rotation, by which it acquires the position and shape shown in the drawing. It is not easy to diagnose, for the reason that there appears to be a tumour behind the cervix. Moreover, the sound goes in *at first* in the direction backwards. The absence of a tumour in front is also misleading; this condition was first described by me in the 1872

FIG. 80.



condition of this work. I have met with at least a dozen such cases in practice.

In figs. 80 and 81 are shown (life-size) anteflexion of the uterus, of different degrees of severity, the position of the adjacent organs being also depicted.

Opportunities are rarely afforded for observing *post mortem* the condition of the uterus in cases of anteflexion. This being so, I think it will be serviceable to reproduce in a slightly abbreviated



form, from the pages of Dr. Ashwell's work,<sup>1</sup> a case recorded many years ago by that most careful and unbiassed observer, Dr. Walter Hayle Walshe.

The case was observed by Dr. Walshe some years before in the wards of Louis in Paris. He gives it as almost unique, the observation of the symptoms being followed by *post-mortem* examination.

FIG. 81.



*Anteflexion and Anteversion terminating fatally.*—V. E., æt. 38. Jan. 9.—Worked as charwoman for last three years; previously portress and housemaid. Had six children, first at 17, last at age of 23. Menses regular. Subject for last five years to pain near upper border of sacrum after the least fatigue. Her food has been poor in quality: she has not for years been in the habit of eating meat. For a month before Nov. 10 sacral pain increased; only slightly unwell on two preceding periods. On Nov. 10, while engaged in washing, there occurred a sudden hæmorrhage with large clots from vagina. Felt no pain, continued her work. Since, has had persistent red discharge, which for

<sup>1</sup> *Diseases of Women*, 1844.



a month equalled daily the quantity lost during catamenia, lately less. Iugular pain at first severe, now less; for last fifteen days occasional pricking pain in left thigh; has lost half her former flesh; scarcely ate anything during first month.

*Present state.*— . . . Defæcation unusually difficult for last two months and increasingly so; no complaint as to passing urine. Impossible to see orifice of uterus by speculum. *Examination with finger.*—Neck of uterus  $2\frac{1}{2}$  inches from vulva; broad, unusually hard, turned backwards. Anteriorly towards pubis a tumour is felt formed by the body of the organ; on pushing it upwards depression of the neck follows. Pulse 76, inodorous vaginal discharge equalling about an eighth of what is lost daily during menses.

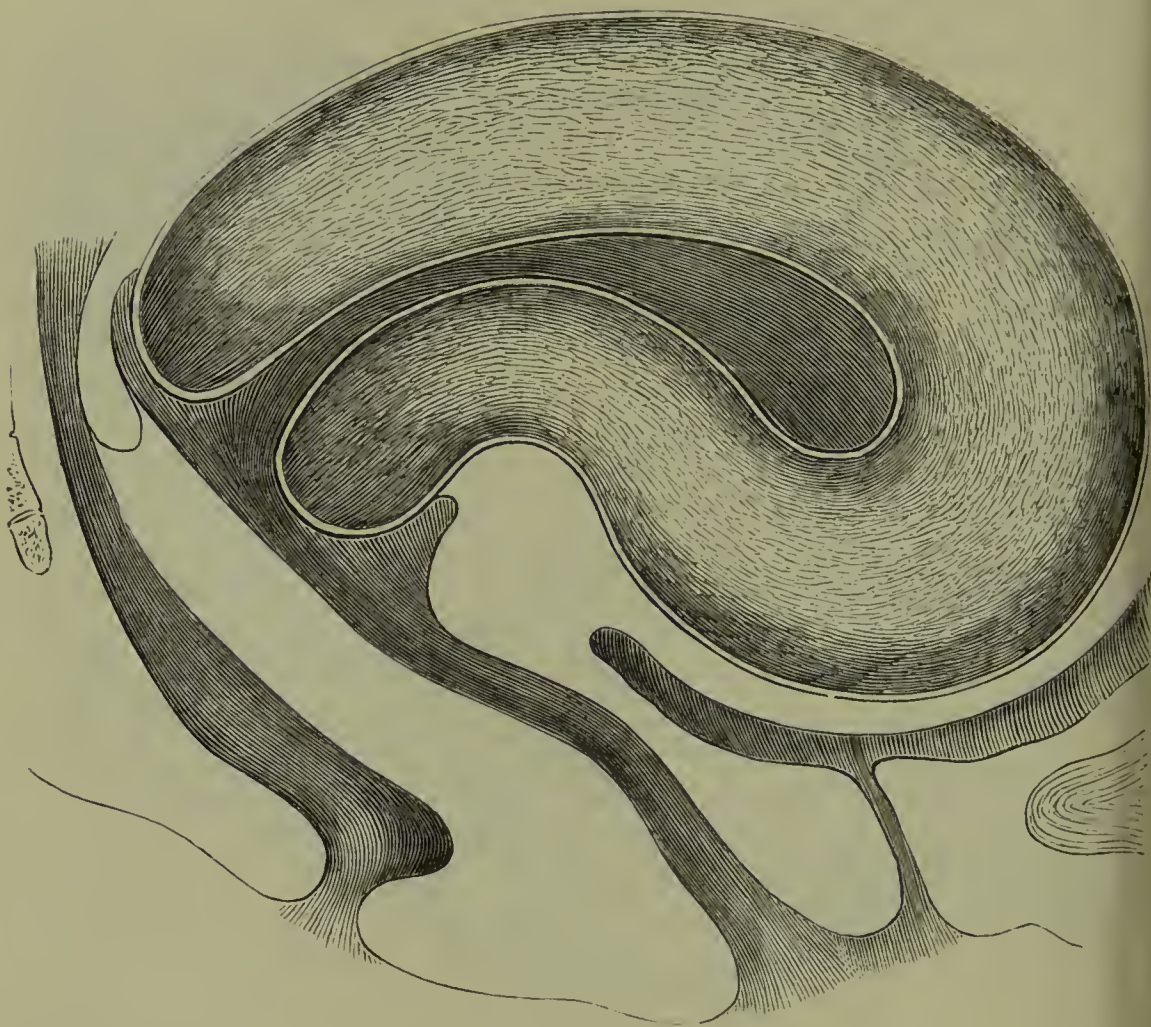
*Feb. 12.*—Discharge of late increased in quantity, but patient better in her general state. To-day, however, a new train of symptoms—great swelling and tenderness of abdomen, violent pain in hypogastrium, first slightly felt three days ago. Bladder not distended; frequent vomiting of greenish matter, on increase. No relief of bowels for four days; pulse 112, regular, very small; discharge almost ceased; decubitus dorsal; knees raised, features contracted. *Feb. 13.*—Abdominal tension increased; extreme tympanitis; great thirst; pulse 126; respiration 54. *Feb. 14.*—Death.

*Post-mortem examination.*—Intestines adherent by false membrane; clot of blood size of egg in Douglas pouch, black in colour: ‘to account for it there appear to be some vessels open.’ Here, too, are several loculi with pseudo-membranous walls of hardish consistence containing putrid clots. Sigmoid flexure adherent, dull red-coloured fluid beneath adhesions, and surface black.

‘Uterus flexed on itself at an obtuse angle at the union of its body and neck, in such a manner that the fundus, concealed by the bladder, is inclined forwards and downwards, while the neck is inclined backwards to the sacrum, the posterior surface of the body being antero-superior. There is a slight lateral obliquity in its direction, the neck being turned somewhat to the right of the middle line, the fundus towards the left crural arch. The body of the organ as well as the neck is hypertrophous; their substance is of a greyish hue and hardened, firm and resisting throughout, except at the union of those parts where there is a band of the organ flattened from before to behind, extremely soft, flabby, and yielding, and corresponding exactly to the angle of flexion. Anterior and posterior walls of the body each measure precisely an inch in thickness; neck is  $2\frac{1}{2}$  inches wide, its orifice gaping.’ Right ovary enlarged, divided into cells containing a puriform fluid. Left ovary also divided into loculi with citron-coloured serous contents; a small reddish clot in one of them.

*The degree of descent of the uterus as a whole* is an important factor in all cases. By some distinguished gynæcologists it is

asserted that flexion and version are not liable to be attended with symptoms unless also the uterus is very low down in the pelvis. It is certainly the fact that the lower the uterus the greater the evil. So far, but no farther, I would express my general assent to the proposition. It generally happens that in cases of ante flexion the descent of the uterus as a whole is a marked feature. The

FIG. 82.<sup>1</sup>

uterus in its flexed condition becomes rotated and at the same time pushed lower and lower downwards towards the pelvic floor. And so much is this the case that it is not uncommon to find the

<sup>1</sup> Fig. 82 represents a severe chronic case of ante flexion of probably fifteen years' duration, in a patient aged 36. There had been a miscarriage shortly after marriage, and several attempts had been made to rectify the displacement of the uterus. The organ was jammed downwards in the pelvis, and in a most irritable condition, much hypertrophied, and a chronic neurosis of one portion of the cervical canal established. Severe sickness, constant pain, locomotive inability, were the chief but by no means the only symptoms.



os uteri quite close to the tip of the coccyx. Such cases are most severe and troublesome. A typical case of this kind would be represented as follows: The uterus in the second degree of ante-flexion, rotation to second degree, the os uteri rather far back, apparently touching the coccyx, the fundus lying very near to the pubic symphysis. Such a case is not uncommon in single women who, after many years' continuous suffering, have become finally incapacitated from active exertions of all kinds in consequence of the pain and discomfort produced by attempts to move about in the ordinary way (see fig. 82 representing such a case). A very troublesome element in cases where the uterus is on the floor of the pelvis arises from the pressure on the rectum, and the most obstinate constipation often results. I have seen one extreme case in which the uterine cervix actually inverted the rectum and protruded at the anus.

The uterus is not always, however, so low down in the pelvis. It may be acutely flexed and yet retain its normal position so far as elevation in the pelvis is concerned; the flexed fundus is comparatively high up and is reached with less ease than usual. Schultze seems to have met with such a condition rather frequently, judging from his statements on the subject, or rather from the drawing he gives to illustrate his remarks. But it is to be remarked that Schultze believes in normal ante-flexion to an extent which I deny. The result of the difference of view is that Schultze naturally finds few cases of (pathological) ante-flexion with the fundus low down, whereas such cases are, from my point of view, very common.

Another very important distinction to be made is as regards the *degree of softness or hardness* of the uterus and the difficulty or facility with which the uterus can be restored to its proper position and shape by means of the sound. This applies of course to all the several varieties of displacement above described. Here is an opportunity afforded for what may be termed the general, as opposed to the mechanical, view of the case before us. It is necessary to determine how far the uterus is fixed and hardened in its disturbed shape, either by a hardening process in its own tissues or by external fixation due to hardening of the cellular tissue and connections of the uterus.

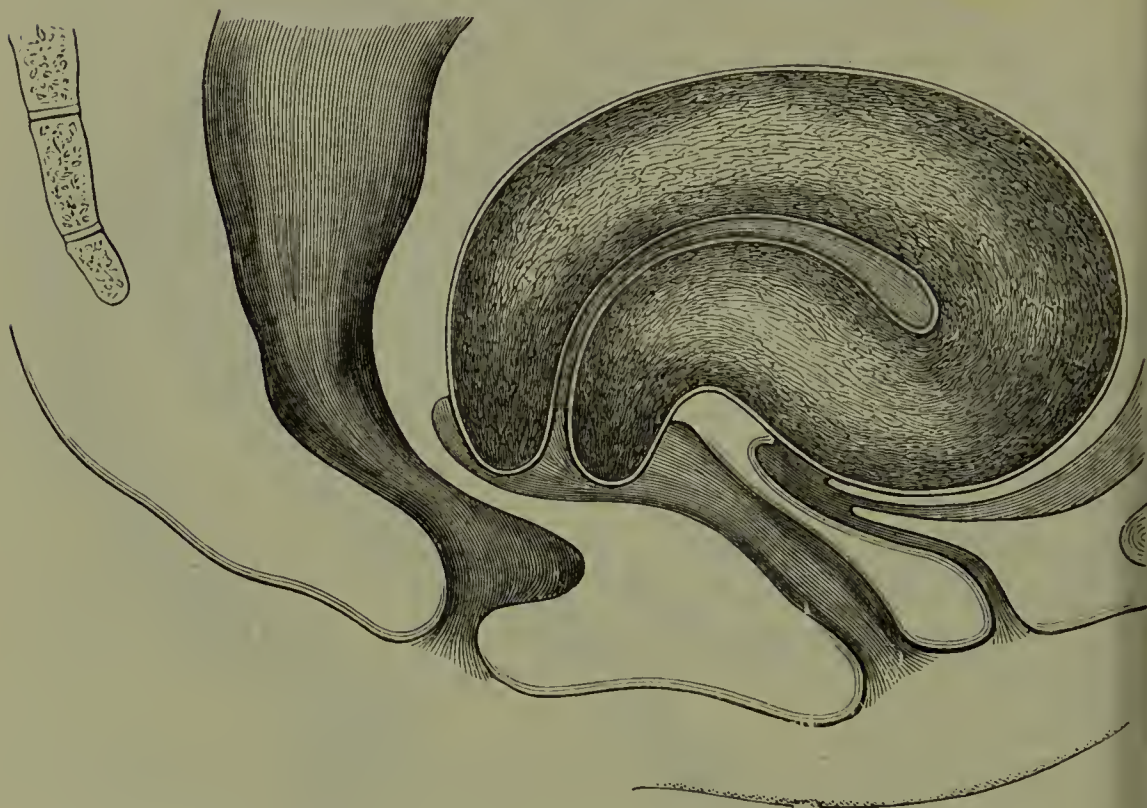
Thus taking a case of the second degree with considerable rotation present, we may find the uterus soft and spongy and readily straightened and elevated to its proper position; or we may find it very hard and firm, and the attempt to straighten it is



attended with difficulty ; or we may find that it is so firmly embedded and jammed downwards behind the symphysis that its elevation is almost impossible at the moment by the aid of the sound. In long-standing cases the latter difficulty is likely to be encountered. The annexed drawings illustrate the conditions referred to in the last paragraph.

In fig. 83 is represented a case of severe anteflexion at age of 19, the subject of which was a patient who had been incessantly sick for ten months, the displacement caused by a jump from a

FIG. 83.



height of six feet. The uterus was large, congested, but soft and spongy in texture.

In fig. 84 is represented a case of severe anteflexion at age of 51, the subject of which was single and had received an injury in getting over a stile when 16 years old. She had been more or less an invalid for years. Here the uterus was very large, quite fixed in its low, anteflexed condition, and it was evident that the malady had been in existence for many years. The two cases above related are quite alike : in both the position is much the same, but in the one the malady was recognised sufficiently early to be quite and rapidly cured ; in the other it was not possible to alter the position of the uterus and the time had passed away for attempting it.

All kinds of gradations are met with both in regard to the flexibility of the uterus and in regard to its mobility. As a rule, when the flexion is in the third degree the uterus is not easily straightened. Sometimes we meet with cases where the flexion is severe but the general mobility considerable; in such cases the uterine fundus is elevated by a slight pressure, but the flexion remains, and although the rotation is reduced, the flexion continues. This fact has an important application in the treatment.

FIG. 81.



The sound is the instrument by which we are enabled to judge of the degree of rigidity of the flexion present, and of the degree to which it resists the attempt to replace and straighten it. (Further remarks on the use of the sound will be found later on under the head of 'Diagnosis.')

*The degree of congestion or enlargement of the uterus present.*—Congestion is rarely altogether absent in cases of anteversion and -version. But it is very much more severe in some cases than



in others. The fundus uteri can be felt to have a much larger size than usual, due to long-continued chronic congestion associated with anteflexion and partly causing it, and being partly caused by it. First, second, or third degrees of anteflexion may each be associated with slight, severe; or very intense congestion, and various degrees of enlargement may be present. A very common condition in women who have had no children consists in combination of anteflexion to second degree, rotation to second degree, enlargement of the uterus, especially the fundus, to three times its ordinary size. Conditions more severe or less severe than this may be encountered. Congestive enlargement with anteflexion is by no means limited to women who have had children.

As a rule the os uteri gives evidence of considerable congestion; this is more decided in women who have had children. In many cases of pluriparæ the os presents considerable swelling, and congestion especially of the anterior lip. In chronic anteflexion affecting pluriparæ the os uteri presents very great hypertrophy, the result of the long-continued congestion and consequent hypertrophy.

In not a few cases, also, in pluriparæ there is eversion of the lining of the cervix and the generally depressed condition of the uterus gives rise in such cases to great friction of the os against the vaginal floor. The congestion and irritation observed at the os uteri in many such cases has long obscured their true nature. These appearances usually result from the general congestion of the uterus itself produced in most cases by the anteflexion. In some instances they result from lacerations of the cervix uteri during labour (see a later chapter).

*Complications.*—Congestion of the uterus is the most common of the complications of anteflexion, as has already been stated. Why this is so has been explained at page 76. The congestion may be *very acute*, giving rise to exceeding sensitiveness to touch, to severe spasmodic pains, to great swelling of the uterus as a whole, to a sort of strangulation of the whole organ. This may pass into a sub-acute and then into a chronic stage. In the chronic stage frequent accession of acuteness may occur. In the end, the uterus acquires a great size and a permanent hypertrophy. Distension of the uterine cavity is rather common as a complication of anteflexion, the cavity is often of considerable size, forming a large pouch, in which blood collects during menstruation, and puriform fluid at other times.



Adhesions, of a peritoneal character at least, do not appear to be common, but fixation is not very rare. It is especially observed in long-standing anteflexions where the uterus is very low down in the pelvis and has carried with it the floor of the bladder. Such a condition, when of long standing, renders restitution of the uterus to its proper shape and position a work of great difficulty. It may be easily confounded (and indeed may be associated) with hardness or rigidity of the uterus itself.

*Cystocele* is a possible complication of severe anteflexion, the uterine fundus forcing the bladder downwards and partly outwards. I have seen such a case in a patient who had never borne a child.

Where it occurs in pluriparæ *cystocele* generally occurs in connection with ruptured perinæum; the anteflexion and the *cystocele* are then traceable to defective perinæal support.

*Cystitis* is, I believe, more frequently the result of anteflexion of the uterus than is supposed. It is very common to meet with extreme irritability of the bladder in cases of anteflexion owing to the mechanical pressure of the fundus on the bladder and interference with its retentive power, but I have seen some few cases of very severe cystitis certainly due to anteflexion, some of which have been at once cured on relief of the uterine displacement.

Chronic constipation is exceedingly common, due to mechanical pressure on the rectum.

*Symptoms*.—It has been stated in describing the symptoms observed in cases where flexions of the uterus are present, that one of the most common is presence of pain during locomotion. This symptom, *uterine dyskinesia*, has been generally described at page 165. It is not peculiar to any special form of uterine flexion, but it is a very noticeable symptom in cases of anteflexion and -version. Peculiar interest attaches itself to this symptom, because its intensity in cases of anteflexion is a test of the degree of importance of these cases.

I have thought it useful to offer the following extracts from notes of cases as evidence of the above statement. It has been my practice always to inquire of patients what it is they complain of, and the following is a part of the reply given in the cases referred to. There are two series of cases, and they are taken consecutively from my case-book, the words given being generally the words actually used by the patient in reply to the interrogation above mentioned.

*Cases of Antelexion or -version of the Uterus—Patients all belonging to the 'Fertile' Series.*

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Constant feeling of bearing-down in walking.</li> <li>2. Since a strain, two months ago, not able to walk.</li> <li>3. Pain on rising from bed in morning.</li> <li>4. Locomotion difficult.</li> <li>5. Incapable of locomotion.</li> <li>6. Walking power gone last four months.</li> <li>7. Locomotion very difficult and painful.</li> <li>8. Locomotion painful.</li> <li>9. Walking power small.</li> <li>10. Almost incessant unpleasant sensations, a sort of aching only going away when in bed.</li> <li>11. Locomotion difficult.</li> <li>12. Walking power small.</li> <li>13. Strained feeling; cannot stand any time.</li> <li>14. Unable to walk from pain in side.</li> <li>15. Cannot walk.</li> <li>16. Walking painful.</li> </ol> | <ol style="list-style-type: none"> <li>17. Feels sitting much.</li> <li>18. Complete inability for locomotion.</li> <li>19. Inability to walk.</li> <li>20. Pain in walking.</li> <li>21. Cannot walk far without pain.</li> <li>22. Feels dragged.</li> <li>23. Pain in walking.</li> <li>24. Walks badly.</li> <li>25. Pain right side on motion.</li> <li>26. Bearing-down in walking or standing.</li> <li>27. Standing difficult from pain in hypogastric region.</li> <li>28. One day, six weeks ago, found could only take short steps.</li> <li>29. Continuous pain right side, since a week's exertion in shopping.</li> <li>30. Cannot walk.</li> <li>31. Discomfort after exertion.</li> <li>32. Pain and discomfort following exertion.</li> <li>33. Exertion painful.</li> </ol> |
|--|---|

*Cases of Antelexion or -version of the Uterus—Patients either Single or, if Married, Sterile.*

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Walking always produces faintness.</li> <li>2. Never could walk much.</li> <li>3. Can walk only short distance.</li> <li>4. Can only walk very short distance without pain.</li> <li>5. Tires readily.</li> <li>6. Locomotion not practised.</li> <li>7. Walking power left her nineteen years ago.</li> <li>8. Incapable of locomotion.</li> <li>9. Cannot sit upright from pain in back.</li> <li>10. Pain on locomotion.</li> <li>11. Locomotion painful after five minutes.</li> <li>12. Tired easily.</li> <li>13. Cannot walk well.</li> <li>14. Walking produces pain.</li> <li>15. Incapable of locomotion.</li> <li>16. Standing, ever so little, insupportable.</li> <li>17. Cannot walk.</li> <li>18. Walks badly.</li> </ol> | <ol style="list-style-type: none"> <li>19. Dragging pain back, especially walking or standing; bearing down.</li> <li>20. Peculiar sensation in groins, and a sick feeling on walking.</li> <li>21. Extreme incapacity for movement.</li> <li>22. Incapacity for locomotion.</li> <li>23. Pain and inability to walk.</li> <li>24. Never could walk well.</li> <li>25. Cannot walk freely or sit easily.</li> <li>26. Pain in side increased by exertion.</li> <li>27. Very little walking power.</li> <li>28. Great difficulty in locomotion.</li> <li>29. Severe pain right groin, worse after exertion.</li> <li>30. Pain in back increased by walking.</li> <li>31. Walking fatigues much.</li> <li>32. Cannot walk well.</li> <li>33. Walking power little, formerly good.</li> <li>34. After walking feels tumbling to pieces.</li> <li>35. Cannot walk much.</li> </ol> |
|--|--|

The above are extracts from reports of cases observed during three years in private practice, and it does not by any means include all the cases of anteflexion in which the symptom in question occurred. In those cases above referred to it was so noticeable a symptom that the patient generally spontaneously mentioned it on being asked 'what she complained of.'

In point of fact uterine dyskinesia is the principal symptom in a very large number of cases of anteflexion and version.

Certain positions of the body, even when the body is in a state of repose, give rise to great pain and irritation in many cases of anteflexion. Thus, the sitting posture gives great discomfort in many cases, especially bending forwards, as in the act of writing, sitting on a low chair, and bending forwards particularly. Riding in a carriage in the ordinary position often produces the greatest discomfort: the combination of sitting and being jolted by the motion of the carriage is often very distressing in its effects. Anything calling into action the abdominal muscles may give great pain even when the patient is otherwise quiet; even putting up the arms to dress the hair gives great pain in some cases.

*Spontaneous* pain is very frequently observed. This pain is generally in the sacral region, but very frequently also it is felt in one of the groins. In a few cases it is very severe and constant, but as a rule when the patient is at rest there is little spontaneous pain.

*Tenderness of the uterus to the touch.*—This is a symptom present to a severe degree in some cases. In fact the anteflexed uterus is sometimes so sensitive to the touch that the greatest difficulty is experienced in making a simple examination. It is not, however, so common to find extreme sensitiveness in anteflexion as in retroflexion. The tenderness when present affects the os uteri. In some cases the sensitiveness is not felt at the os uteri so much as within the canal. The internal os uteri is not seldom the seat of a very extreme sensitiveness, the patient screaming out when the extremity of the sound reaches the point in question. There is generally acute congestion of the uterus when general sensitiveness is present, and when the uterine canal is so sensitive the flexion is an acute one and is generally of long standing. In such cases a neurosis has been established at a certain situation, and the spot is usually quite definable, other parts of the uterus being comparatively non-sensitive.

In a few cases we meet with a chronic congestion and enlargement, together with anteflexion and a condition of very severe



sensitiveness which remains so long as the flexion and congestion persist, but disappears for a time under treatment. This recurs from time to time unless means are taken to prevent the descent of the fundus forwards. When pain or tenderness to the touch are felt just above the groin on one side, the idea naturally suggests itself that it is due to some quasi-inflammatory condition at that spot, and it has frequently been assumed that it arises from ovaritis. I have seen many such cases in which on careful examination no tenderness or abnormal condition of the ovary could be detected by very careful examination from within, but where the uterus was found to be anteflexed and proved to be the source of the pain.

Various abnormal sensations are experienced by patients suffering from anteflexion or -version not included in the foregoing account. A sensation of weight at the hypogastrium is common, especially in cases of patients who have had children; a bearing-down sensation is not uncommon. A sensation of movement, a sort of rolling-about feeling, within is occasionally described. A feeling of sickness or nausea is very common: this symptom is generally brought on by exertion or by sitting in a constrained or in the upright position, and it will require special mention later on.

*Dysmenorrhœa* is a very common symptom. It exists in all degrees of severity. It is very rare indeed to find a case of marked flexion in which menstruation is normal and unattended with pain. Taking cases of dysmenorrhœa in bulk, it will be found that the most common cause is anteflexion or -version of the uterus. The uterine canal is narrowed by the flexion, the outlet for the uterine secretion is restricted and pain ensues. Further consideration of this subject will be necessary in the special chapter on '*Dysmenorrhœa*.'

*Menorrhagia* is not uncommon in cases of anteflexion. This symptom is sometimes observed in a very marked degree in quite young women during the first two or three years after commencement of the process. I have seen cases of this latter kind where the loss was almost continuous for a month together and where the anteflexed condition of the uterus was found to be the cause. It is true such extreme cases are not common. Later on menorrhagia is more common in cases where the uterine flexion has existed some time, and the uterus has become enlarged, its interior greatly expanded, and the fundus forms a pouch hanging forwards in an acutely anteflexed state. (See fig. 85.) Blood collects in its interior and escapes in large gushes from time to time.

*Leucorrhœa* is very common. The discharge may be due to the congestion and irritation of the os and cervical canal, but it is not seldom an intra-uterine leucorrhœa, due to retention of secretion within the uterus, to an irritated, vascular condition of the uterine interior (so-called 'endometritis'), concomitant with and arising out of cervical obstruction and flexion. The leucorrhœa in the latter case is often observed in form of gushes of sanious fluid. It may even become offensive to the smell. I have seen a case in a single patient who had for some time been subject to an offensive leucorrhœa, due to a flexion of the uterus, and which

FIG. 85.



entirely disappeared when the flexion was dealt with. Obstinate long-standing cases of leucorrhœa will not seldom be traced to the existence of an unsuspected anteflexion.

*Amenorrhœa*.—This symptom is occasionally met with, the process of menstruation having become entirely and prematurely arrested by the anteflexion present. In other cases it is observed to be very scanty and slight in regard to the amount of discharge.

*Sterility*.—Anteflexion is one of the commonest causes of sterility. Fecundation is prevented generally owing to the narrowness or tortuous condition of the uterine canal in such cases, or by the compression which the canal undergoes owing to its flexed condition, or owing to the restraint which the distortion of the uterus places upon the natural physiological action of the uterus at the time of the coitus. Another cause is the altered character

of the uterine secretions, as in cases when retention of leucorrhœal fluid in the uterine cavity occurs.

Sterility is primary in many cases, in others it is secondary ; that is to say, the patient, having had one or more children, becomes affected with severe anteflexion, and thereafter, or until cured of the anteflexion remains sterile. (Statistics on this subject will be found at page 186.)

*Abortions.*—Anteflexion is responsible for the greater number of the abortions which occur. Many of them arise in the following manner : The patient has a slight anteflexion ; she becomes pregnant ; the uterus does not expand properly owing to the flexion ; abortion results. Or the uterus is weak, and an accident or fall produces an anteversion of the gravid uterus, followed by an abortion. But the former is the more common order of events. (Statistics on the subject of abortions in reference to flexions will be found at page 186.)

*Dyspareunia.*—Pain in intercourse is a symptom sometimes existing to a great degree of severity. Physical injury is no doubt often inflicted by excesses in regard to intercourse, and the uterus is in some cases actually displaced in consequence. But dyspareunia may exist when there has been no such history of excess in this direction.

*Reflex nervous symptoms.*—In order to avoid unnecessary repetition, these symptoms will be considered in a separate chapter. Reflex nervous symptoms are exceedingly frequent in cases of anteflexion or -version, especially sickness and nausea ; but as these symptoms are not peculiar to this special variety of uterine flexion it will be best to discuss them from a more general point of view. (See chapters on ‘ Association of Pregnancy with Flexions,’ and on the ‘ Vomiting of Pregnancy.’)

*Symptoms relating to the bladder.*—Frequency of micturition is a very common symptom in cases of anteflexion or -version. It is sometimes the principal symptom. In a few cases it is so productive of inconvenience and distress that the patient thinks of nothing else. The necessity for evacuating the contents of the bladder may be present as often as every hour, or even less. It is generally limited to the day, which means that when the patient is in the horizontal position it is not so liable to occur. In severe cases it interferes materially with ordinary going about, and is a source of great misery. It is generally worse at the menstrual periods, but I have known cases where it was always better at those times. The symptoms depend for the most part on the pressure



of the body of the uterus on the bladder and interference with its due expansion. But there is evidence of the presence of cystitis in some cases. When the anteflexion has existed for some time, the bladder either becomes more tolerant of pressure or expands in a new direction, and the irritability may cease.

Pain after micturition is a condition which is met with in some rare cases of anteflexion. A curious case I have in my recollection in which a young lady had been affected for three years with this symptom, which completely destroyed her comfort. It appeared to depend on the contact of the opposite sides of the bladder due to a severe anteflexion, and it disappeared on treatment of the latter condition.

*Symptoms referable to the rectum.*—Constipation of a very obstinate character is observed in many cases of anteflexion or -version. It appears to be a mechanical effect of the altered position of the uterus. In some cases severe straining efforts are quite ineffectual: the uterus being forced down on the floor of the pelvis the rectum is effectually blocked. It is perhaps not at first easy to say why this should occur in some cases to such a marked extent and not at all in others. The explanation may be that when obstruction occurs the cervix uteri happens to be forced down in the centre of the rectum while it avoids the exact centre in others. I have seen cases in which all kinds of medicine had been tried unavailingly, and in which restoration of the uterus to its proper position was effectual in relieving the constipation.

A case already mentioned once came under my notice where the cervix uteri was actually forced by expulsive efforts into the rectum, everting it and, projecting at the rectal aperture, effectually blocked the passage, but I have only seen one such case.

#### DIAGNOSIS.

On the subject of the diagnosis much has already been said in speaking of the definition of anteflexion and -version (see page 251).

The diagnosis is easily arrived at in most cases, the patient being properly placed and the finger introduced in the manner described in a former chapter (see page 27).

The *digital examination* gives the most reliable information, and unless it is thoroughly done no satisfactory notion of the case is obtained.

In this manner the roof of the vagina should be carefully

explored and the position of the body of the uterus ascertained—its size, width, distance from the pubic bones, and the elevation of the uterus as a whole in the pelvis.

If the finger can be pushed upwards in this position without encountering the resistance of the body of the uterus, as a general rule it may be taken that the uterus is not anteflexed or anteverted. This is a rule to which there are exceptions, as pointed out at page 252. As to recognising the body of the uterus by the touch, it is a matter of skill, requiring practice to obtain accuracy and certainty. The greatest real difficulty will be found in cases where the roof of the vagina presents a hardened resisting condition, which may turn out to be either anteversion and -flexion *plus* some exudation hardening, or exudation hardening alone. Another cause of difficulty is the retreating or rotation backwards of the fundus, which sometimes happens by the mere pressure of the exploring finger. The tumour or resisting mass felt through the vaginal roof is generally recognisable as the body of the uterus by its continuity with the cervix, by its shape, size, &c. The uterine body is often a little to one side of the middle line and not exactly median in position. In some cases the lateral deviation is yet more decided, although it does not amount to lateriflexion. These cases give great trouble in regard to treatment unless this lateral tendency is duly recognised and adequately guarded against.

When the flexion is high up and the uterus not much rotated forward, the ordinary digital exploration may fail to detect it. These are quite exceptional cases, however. When the uterus is very soft and pliable, the exploring finger, unless carefully educated, may fail to recognise its presence through the vaginal roof.

The *double touch* is very useful in difficult cases (see page 29).

A vaginal examination cannot be always made. In young single women this examination would of course be deferred as long as possible, or, at all events, not undertaken lightly. Information can often be procured by digital examination of the rectum, and an anæsthetic could be employed to render the examination more easy. As regards the necessity of a local exploration it is impossible to lay down a universal law. Incapacity, of some months' standing, for ordinary exertion should induce taking the case seriously into consideration, and in the first place a rectal examination could be made. If the existence of a marked displacement were thus made out, the course would be comparatively clear; and if none were detected so much the better for the patient.

The use of the *sound* is very necessary in many cases to clear up diagnostic difficulties. The sound should never be used *first*: a digital examination should always precede it, otherwise the body of the uterus may be pushed by its means into a different position and the observer may be misled. When the uterus is unduly soft this latter event is very likely to occur; and I know of cases in which marked anteflexion has been entirely overlooked, apparently because it was found that the sound could be passed without much difficulty. The fact is, that in some cases the sound unbends the uterus in the act of introduction.

Knowing that there is a tumour anteriorly, anteflexion would be suspected, and the point of the sound kept inclined forwards as it is being introduced. The introduction may be extremely difficult—generally is, in fact, when the uterus has been some time affected.

I prefer to use the sound almost straight (see representation of shape of sound at page 40). In cases of anteflexion the cervix uteri is generally rather far back, often very much so—so that the first difficulty is to get the point of the sound in the os uteri at all. Having inserted it about half an inch, the next procedure is to incline the point of the sound upwards and forwards, and *at the same time* to draw the uterus as a whole a little towards the symphysis by means of the sound. The result of this usually is that the advance of the sound through the cervical canal is facilitated: the uterus really begins to be straightened. Then, by gradually depressing the handle more and more towards the rectum the sound can be introduced to its full extent. The process should be a slow one, and no force used. It may be taken for granted that if a difficulty is met with, it is due to the point of the sound not being made to assume a proper direction. There are really few cases in which the passage is so much narrowed that the entry of the ordinary sound is impossible. It is almost impossible to introduce a nearly straight sound into a uterus in the third degree of anteflexion and forward rotation, unless the above directions are carried out. When the sound is completely in the uterus the position of the fundus is certainly indicated; but, as already remarked, the flexion may have been got rid of in the mere act of introducing the sound. The sound is very valuable in diagnosing absence of tumours in the anterior wall. Sometimes appearances are very deceptive in this respect: the use of the sound reveals not uncommonly that what was supposed to be a tumour is really nothing more than the third degree of anteflexion.



The ordinary sound cannot always be introduced, a smaller one is sometimes required.

In cases of anteflexion with *posterior* rotation the passage of the sound is confusing at first, for the sound appears to pass backwards until one inch and a half perhaps has been inserted, and this may give the notion of existence of retroflexion, but on afterwards turning the point sharply upwards and forwards the true nature of the case is revealed.

The condition of the os uteri gives some information in many cases. In pluriparæ the os is a little open, or may be much open, and the anterior lip is often very much swollen and everted (the contrary to that which happens in retroflexion), and the shape of the os is crescentic, the concavity of the crescent upwards.

The position of the cervix varies according to the nature of the flexion. The cervix is generally far back—it may be so far back as to be reached with great difficulty with the finger. But in cases of anteflexion with posterior rotation the os may appear to be in its natural place. In the latter instance, however, it looks upwards instead of downwards. The mere fact that the cervix is very far back is almost alone sufficient to diagnosticate presence of anteversion.

In some cases which have come under my notice there has evidently been a misunderstanding on the part of the attendant as to the significance of a too posterior position of the cervix. I could mention cases of this kind which have been spoken of as cases of retroversion, simply from inattention to the proper nomenclature of the affection.

## CHAPTER XXIII.

## ANTEFLEXION AND ANTEVERSION OF THE UTERUS—

*(continued).*

TREATMENT.—Important Differentiation of Cases in regard to Cause of the Affection—the Age, the Duration of the Malady—Importance of General Treatment—Illustrations of Method of Treatment necessary in a recent Case—Positional Treatment very Important : How to be carried out—Sitting Position to be avoided—A more Severe Case—Combination of Local and General Treatment—Use of ‘Cradle’ Pessary and Sound—Case in which Uterus is very Rigid and Affection of some standing—Further illustrative Cases of Treatment of Ante-flexion after Pregnancy.

Employment of ‘Incisions’ of the Cervix—Former Misconceptions as to Stricture of the Cervical Canal—Utility of the Operation in Cases of Flexions considered—Necessity for Bougies or Stems afterwards—The ‘Stem’ Treatment considered—General Conclusions—Difficulties in Absolute Cure of long-standing Cases.

MANY cases of anteversion and -flexion can be cured by general treatment alone—that is to say, by a scientific application of a knowledge of the laws of health and of the laws which regulate the motion of the uterus, and without the necessity for local manipulation of the uterus. But when the malady has existed for a long time, and when the uterus has become firm and hard in its distorted shape, there is nothing more difficult than to effect a perfect cure, and all the resources of mechanical dexterity are required to produce a thoroughly satisfactory result.

The general treatment of flexions (already for most part fully described at p. 189) is applicable in cases of anteflexion and -version; that is to say, the diet, the general health, regulation of the bowels, &c., require great care and attention.

Many cases of anteflexion and -version can be successfully treated by general measures. In the first place, however, it is important to distinguish between (*a*) cases where the symptoms have come on suddenly and plainly, as the result of some accident, injury, strain, fall, &c., and (*b*) cases where the approach has been more gradual, and where the case is evidently one of general weakness, (*e.g.* mal-nutrition), with undue mobility, softness, and slight

flexion resulting from even ordinary exertion. These two categories of cases require a distinction in regard to treatment; for a severely and suddenly displaced uterus is as much a proper object of surgical attention and treatment as a broken limb. General treatment alone would be as a rule applicable in the class *b*, but it might be wholly inappropriate in the class *a*, as defined above.

Then, again, the question of the age of the patient affects the decision as to treatment. Under the age of 18 or 19 general treatment would be preferred to local treatment—and for very sound reasons: one is obvious enough without necessity for mentioning it. Another is that at this age a slight tendency to distortion of the uterus is capable of being corrected by general treatment alone: the disease has not at all events had time, as a rule at least, to become a rooted one. Here, however, the duration of the suffering must be considered, for if there be evidence of existence of the malady for two or three years and the illness and incapacity be considerable, the age should be no bar to a proper remedial treatment.

There are many cases occurring at 17 or 18 in which young women present symptoms clearly indicating slight degrees of ante-flexion, and where the symptoms have not existed more than a few months. Such cases are quite amenable to general treatment.

In regard to cases generally, I believe that the *duration* of the malady is on the whole a good guide as to the necessity for local as well as general treatment. When the duration extends over a year or two, general treatment by itself is of little service, though very necessary as an adjunct. Even to this statement there is an exception, for if the uterus happens to remain soft during the whole time it is still comparatively easy to make it assume a more natural form.

The majority of cases require for their treatment a combination of general and local treatment. Above all they require what I have termed a ‘mechanical’ treatment; by which is meant not necessarily the employment of mechanical apparatus or instruments of any kind, but the utilisation of the action of the force of gravity. It implies also the utilisation of the conclusions expressed at p. 77, in respect to the manner in which flexions cause congestion of the uterus, and of the knowledge that the congestion is to so great an extent a natural consequence of the presence of the flexion, and can be ‘mechanically’ removed by elevating the



fundus uteri, that elevation being effected by the aid of gravity or by some other mechanically acting force.

Dr. Emmet has some remarks in his valuable work which show the great importance he attaches to this principle of treatment. Speaking of the treatment of uterine displacements he says, 'Our first aim should be to give tone to the pelvic vessels, and to place the uterus in a position where the circulation will be the least obstructed' (*op. cit.* p. 144).

I now proceed to illustrate the application of general or general and local treatment to particular cases.

Thus, a young lady of 18 is suffering from a slight anteflexion. Duration of ill-health one year only. In such a case as this a proper treatment would be to restore the nutritive activity by careful feeding, and attend to the general health; in the next place, to insist on the maintenance of the recumbent position during the greater part of the day: the patient to choose a chair with a very sloping back, or to use a sofa; to walk only a short distance at a time; to avoid all exertions, stooping, lifting, carrying, &c.; fresh air as much as possible, baths, friction, &c.

One of the chief points in the above treatment is the positional treatment recommended. The lying-down position is in fact most important, and after seeing much of the evil results of a misjudged 'active-exercise' treatment in such cases as the one mentioned above, I have no hesitation in saying I believe it to be essential to progress in the right direction. The dorsal recumbent position is the best. This may be occasionally modified by placing a pillow under the lower spinal region to elevate the pelvis a little; and the knee-and-elbow position should be employed several times in the day as a further assistance. Some weeks of the above treatment are generally required to produce much effect. Change of air, change of scene, are adjuvants, but it is a great mistake to imagine that they will alone and unaided cure the patient if violent exercise be permitted.

The sitting position I have always found very unsuitable in cases of anteversion and -flexion—that is to say, sitting in the ordinary position in an upright chair; and for a long time I have found great advantage from advising this position to be as much as possible given up in such cases. It is infinitely worse, according to my experience, for a patient to sit at table or at meals for an hour than to go for a walk of the same duration. Such sitting is, in fact, no rest to the patient, and the flexion is thereby exaggerated. It will be found that an iron-frame chair with a back

capable of being let down to an angle of  $45^{\circ}$ , whereby the vertebral column is inclined much backwards, is excellent for patients requiring proper rest, and it may be exchanged for the sofa when desired.<sup>1</sup> The amount of walking to be done depends on circumstances. Twenty minutes twice a day would be suitable in the case above mentioned.

The knee-and-elbow posture is of considerable assistance in

FIG. 86.<sup>2</sup>



such cases. It may be employed for five minutes at a time, five or six times a day.

We may next take a more severe case. The patient is 22 or 23, and has been ill for some three or four years. The uterus is anteverted to the second or third degree; there is great weakness;

<sup>1</sup> A chair admirably adapted for this purpose is sold by Williams, 41 New Bond Street.

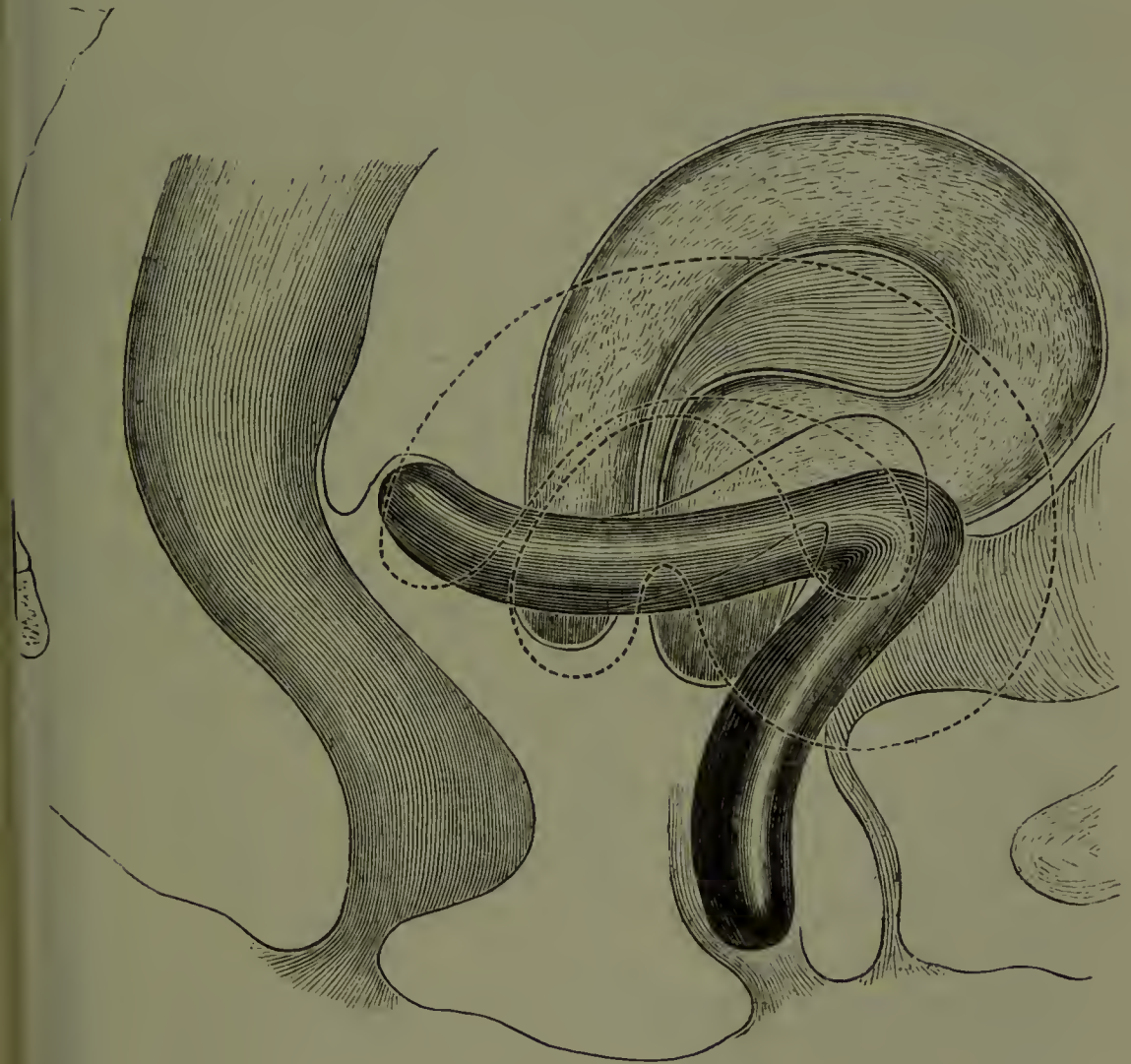
<sup>2</sup> Fig. 86 represents the cradle pessary *in situ*. The case represented was one of a nulliparous uterus in a highly congested state, anteverted to second degree, with much anterior rotation. The pessary is one of small size.



the uterus is soft to the touch, readily replaced by the sound, but returns to its distorted shape on withdrawing the instrument.

This is a case which will prove most difficult to cure unless some kind of mechanical internal treatment be had recourse to. The recumbent position as described above, but more strictly so for the first few weeks, is required. Reposition of the uterus by

FIG. 87.<sup>1</sup>



the sound every third or fourth day. At the end of ten or fourteen days introduction of a cradle pessary, which, if well fitted and found to work well, may be retained for some weeks. Details as to the pessary to be employed will be given later on. Use of sound to be continued at intervals of a week or so, the object being to straighten the uterine canal more completely. For this

<sup>1</sup> Fig. 87 represents a cradle pessary of large size as in action in a case of anteversion and -version in a patient who had had children; uterus large and congested.



purpose the sound is inserted nearly straight (see, for method of introduction, p. 40). It should then be turned gently round so as to unbend the uterus, and withdrawn at the end of four or five minutes. Conjoint use of the sound and the pessary may be found difficult to carry out without withdrawal of pessary, and in some cases it may be better to dispense with the sound for some weeks at first. But the pessary should be used continuously for the most part, or, at all events, if it be removed for a day or two, the patient must not be allowed to move from the horizontal position, otherwise ground gained may be lost, for the action of a well-acting pessary is like that of a splint, keeping up a continuous rectifying action and preventing movement of the fundus in the wrong direction.

After a period of a month or six weeks the patient may, perhaps, be allowed to move about the room a little, but not to sit upright, and a walk out of doors may be permitted at the end of two months. Carriage exercise, though good in one way, is very bad in another, for unless the recumbent position be maintained the jolting of the carriage is most distressing to the patient; a little walking is infinitely preferable.

The further treatment will consist in the use of the pessary, changed from time to time, if necessary, for one more suitable to the altered condition of the uterus, or to allow of occasional use of the sound; and it is probable that in such a case as that described it will be necessary to continue the use of the pessary and avoidance of the upright sitting posture for perhaps a year. But after the first two or three months, or even earlier, the patient may be so much better as practically not to be an invalid.

In cases where the uterus is very soft, but the case otherwise as represented above, the use of the sound would be less necessary. More care would be required in the nutritional direction, and a year would be probably not enough to produce a complete cure: not because it is so difficult to keep the uterus in place and in shape as it is to give it the strength to retain its place and shape unaided.

We may next take a case still more severe. The patient is 27 years old; there is anteflexion to third degree, anterior rotation to third degree, uterus very low down in the pelvis, os uteri almost touching the coccyx, space behind symphysis filled by the enlarged uterus, the uterus itself hard to the touch, introduction of sound difficult, unbending of uterus difficult and painful, illness six or seven years in duration.

In such a case the elevation of the uterus may be difficult, so also the unbending, owing to fixation and hypertrophy of the organ. The best plan to adopt in such a case would be to keep the patient recumbent on the back for two or three weeks, using daily copious injections of quite hot water and employing pressure on the fundus by means of the finger occasionally, aiding the elevation also by the knee-and-elbow posture from time to time. After a few days the treatment by the sound might be commenced, and soon a cradle pessary might be used. But under such circumstances there is a greater risk of creating irritation by the conjoint use of the sound and the pessary, and the treatment must be modified accordingly. Moreover, we cannot expect to advance rapidly in the first part of the treatment, for the hardness and fixity of the uterus are against us. Still, by the aid of rest, hot water, and slight continuous pressure upwards, distinct advance is gained, and after a few weeks more rapid progress is possible. The steel dilating instrument described at page 198 (fig. 48) is a valuable aid in such a case as the above, for the uterus can be straightened and at the same time gently dilated by its means, and the two processes of straightening and gradual dilatation are a mutual help in the rectifying treatment.

The cases just mentioned have been given in outline only, and with the view of setting forth the general method of treatment which I have found most serviceable and successful in the large majority of cases, details as to treatment of the various complications frequently present being postponed for separate discussion. Necessarily hardly two cases are alike, and each case has to be treated on its merits; and the outline given above, therefore, is to be taken as representing the idea of principles of treatment which has seemed to me applicable to very many cases. With slight differences the principles in question may be extended to other cases not included in the above series.

Take, for instance, the case of a patient who suffers from anteflexion dating from the birth of a child a year ago. In such a case, a vaginal pessary for a few months, combined with avoidance of the sitting position for a month or so, will probably effect a cure.

Similarly an anteflexion dating from three years since the birth of a child. Here a pessary will probably not be sufficient—the use of the sound will be required, and a prolonged rest may be essential to produce the necessary change in the shape of the uterus. In such a case in all probability there would be consider-

able hypertrophy of the whole uterus, and this would have to be dealt with. Without a long maintenance of the horizontal position no progress could be made, because the patient would not bear the pressure of the pessary. There would very probably be other complications also requiring attention. (For further remarks on application of pessaries see following chapter.)

*Cases of ante flexion with posterior rotation.*—In these cases great difficulty is found in the treatment. When the uterine tissues are soft a well-adapted cradle pessary answers very well in some cases. A stem pessary may be found suitable where the cradle does not fulfil the necessary indications. When the uterus has become hardened and a long time has elapsed a continuous dilatation treatment, associated with use of a cradle, will be found best, according to my experience, but it may be necessary afterwards to use a stem pessary.

It may be well in the next place to mention cases in which care and caution are requisite in application of the treatment by means of the sound or dilator, either alone or along with vaginal pessaries. Where the flexion is of very long standing (say over seven years), and the uterus is hard and rigid, and the patient over 35 years old, there is a danger of setting up irritation by the repeated use of the sound or a metallic dilator, more especially if a vaginal pessary be used at the same time. Indeed, I have known cases of this kind in which even the sound alone could not be used at all without risk of inducing an attack of pelvic cellulitis. These considerations lead to the necessity for care and caution in attempting to extend the principles above mentioned to cases of long-standing flexion with a hard uterus.

In view of the facts just mentioned, it may fairly be questioned whether it is not preferable to employ some other method of treatment than those above described in cases of long-standing flexion—that is to say, either incision, or dilatation by means of tents, and subsequent use of the stem treatment, in order to obviate the difficulties encountered in these exceptional cases.

There are two other methods of treatment of ante flexion to be described—(1) *Incision of the cervical canal*, and (2) *the use of the uterine stem*.

These methods of treatment are, according to my experience and belief, inferior in effect and general applicability to the more simple methods already described. On this subject, however, opinions differ. I have not, at all events of late years, employed these methods to any considerable extent.



Before alluding further to these other methods of treatment it may be well to point out the position of these operations in regard to the pathology of the uterus.

Incision of the cervical canal had for its primary object the relief of dysmenorrhœa, or the cure of sterility. And it was not at that time understood, at all events to the extent it now is, that the supposed structure of the cervix uteri which the incision was to open was in the very great majority of cases due to acute flexion of the uterus. And whereas the question would have been asked some few years ago, Is such an operation good for the cure of dysmenorrhœa?—the question now would more properly be, Is the operation capable of curing the acute flexion which is the cause of the dysmenorrhœa or sterility, or both?

It by no means follows because the operation was founded on a misconception that it was really a bad operation; and it is well known that in many cases the operation was temporarily successful, while in a few its success was more permanent. But in estimating its value we must, as I believe, regard it from a different point of view to the original one.

*Incision of the uterine canal as a remedy for chronic ante-flexion of the uterus.*—The operation consists in incising the uterine canal from within, generally on the two opposite sides—the incision being made so as to affect the part of the cervical canal at and below the internal os, and being carried downwards to the external os uteri in such a manner that the entrance to the uterus is rendered somewhat funnel-shaped. The depth of the incision is such as to allow of the free passage of a large sound into the uterus. The cervical canal and the internal os uteri are then plugged carefully with cotton or lint saturated with an antiseptic or a styptic such as perchloride of iron. The plug is retained for two or three days, and then a solid plug or stem is inserted so as to maintain the degree of opening obtained by the operation.

Such is the operation in its general outline, though the details are somewhat differently carried out by different operators.

The permanent value of the operation above described depends on the efficiency of the subsequent treatment. It appears that in most cases the uterus returns to its previous condition, or nearly so, unless the subsequent treatment is continued for a very considerable time. The edges of the incision unite, the flexion returns, and after two or three months have elapsed the effect of the operation seems to have passed off. At least this is liable

to be the case, if the flexion is of long standing—five or seven years or upwards. If, therefore, a long-standing flexion be thus treated, either a stem pessary should be worn continuously for many months after, or a combination of occasional bougie treatment, with use of a vaginal pessary, would be necessary. It seems to me that in very obstinate long-standing cases of anteflexion, with a hard uterus, the incision treatment well followed up is capable of effecting more than can be effected in any other way. But at the same time, according to my experience, the cases in which the treatment is really required are few in number.

With reference to the danger of the incision plan of treatment it cannot be said that it is devoid of danger; and seeing that it is an operation for which it could be rarely said there is an absolute necessity, the possibility of a fatal result should certainly be duly considered in undertaking it.

Details regarding the incision treatment will be given separately later on.

I propose in the next place to speak of the *stem treatment* for the cure of anteflexion.

I have in the course of practice had a considerable experience of stems, and some few years ago employed them frequently. In the last edition of this work I described an apparatus for the purpose which has been extensively employed since, either as originally described by myself or with certain slight modifications. But I have not employed the stem treatment in a large number of cases of late years, having preferred for most cases a conjoined treatment by vaginal pessaries and use of the sound or dilator.

The stem treatment is applicable in cases of anteflexion as a means of retaining the canal (*a*) pervious and (*b*) straight. The advantage gained is the certainty of these two objects being secured so long as the stem is worn. When the flexion is not of long standing the use of a well-adjusted stem for a few months will very possibly result in a satisfactory cure: provided that it excites no intercurrent irritative attack, that the general treatment of the patient is judicious, and steps be taken to nourish and strengthen the body generally. In such comparatively simple cases, however, equally beneficial results without the same liability to production of irritative effects can be procured, according to my experience, by other more simple measures.

Taking cases of a more severe type, where the flexion has been of longer duration, the stem treatment offers in such cases advantages which will probably decide many gynæcologists, at all events

occasionally, to employ them. In reference to the dangers of the stem treatment much has been said, some authorities going so far as to say they ought to be abolished from practice. Undoubtedly fatal results have followed their employment, and it is difficult to say how far these fatal results have occurred from want of care or from an inherent dangerous tendency of the treatment.

An interesting paper on the subject of the use of stems was published in the 'American Journal of Obstetrics,' in 1877, by Dr. Ely van de Warker, and a discussion followed<sup>1</sup> which may be studied with advantage. It is there shown that opinion in the United States differs very much on the advisability of the stem treatment. Dr. de Warker gives it as his opinion that the treatment is capable of being employed under conditions which govern every careful surgeon in the use of any other mechanical device; that the contra-indications are recent pelvic inflammation, acute or chronic peritonitis, extreme hyperæsthesia of the uterus, intolerance of its cavity; that the stem should not be continuously worn if the pressure is great from the flexion; that the stem should be so short as not to touch the fundus; that the support should be in the vagina and movable, non-corrosive, and that it should be managed by an expert.

I give the above *résumé* of the paper because it appears to me to be a fair statement of the question. In this country the stem treatment is strongly advocated by some able gynæcologists, Dr. Routh, Dr. Granville Bantock, Dr. Wynn Williams, Dr. Thomas Savage of Birmingham, and others.

Dr. Routh insists on the necessity for preparatory treatment and blood-letting, in some cases use of tents, in some use of the hysterotome. Dr. Bantock would recommend at first use of sound, tent, or bougie, but if the flexion be acute he would divide cervix by incision and use the stem afterwards. Dr. Playfair states that he uses stems in exceptional cases only and when constant supervision can be exercised. Dr. Wynn Williams and Dr. Thomas Savage state that they have very largely employed the stem treatment, and without any bad effect resulting. For myself I can say that, having employed the stem treatment in many cases of ante-flexion, I have never had a fatal result.

Some further remarks appear to be required as to the action and value of the stem treatment in obstinate cases of ante-flexion. Care should always be taken to ensure that the fundus of the

<sup>1</sup> *American Journal of Obstetrics*, 10, p. 694.

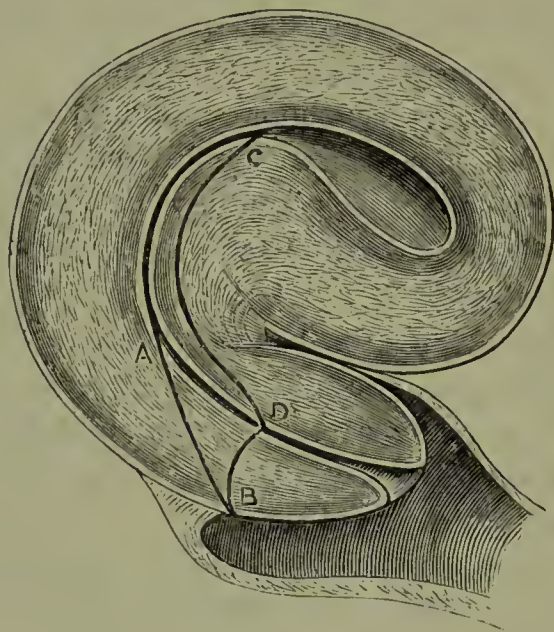


uterus be kept in its proper position. For this reason the stem must have a vaginal framework on which to rest and to which it shall be so far fixed as to retain the long axis of the uterus in its proper position, and so as to prevent rotation of the fundus forwards. Unless this object is secured, the stem treatment is, in my opinion, likely to turn out a failure.

Another point : inasmuch as the stem keeps the uterine canal straight, and continuously so, the compression of the tissues of the cervix which is the result of long-continued acute flexion, is put an end to ; the atrophy has a chance of being remedied. The efficacy of treatment by the sound in this respect may be compared with that resulting from the use of the stem as follows :—

The object we have in view is to permanently alter the shape

FIG. 88.<sup>1</sup>



of the cervical canal, which in long-standing cases is liable to be much atrophied on one side. By the repeated use of the sound we are able to bend the canal in the opposite direction to a slight extent. The frequent repetition of this process (aided by the vaginal pessary) in time produces a considerable effect, because by means of the sound we can do more than actually straighten the canal. Thus, by frequently slightly retroflexing the uterus we in time cure the anteversion. This is undoubtedly an advantage which the sound treatment possesses, but which the stem does not. On the other hand, the stem, when once introduced and found to suit, can be worn for a long time, during which the uterus

<sup>1</sup> Fig. 88, acute anteversion. Lines show incisions made in Emmet's operation.

is always kept straight, and repeated manual treatment is not required.

The cases which present most difficulty in the way of permanent rectification are those of sterile patients with an elongated cervix of a tapering character, but very much bent upwards, so that the os looks directly upwards. It is held by some gynæcologists that this is a congenital condition. Such is not my impression. At all events the cure of these cases is confessedly difficult. A short way of dealing with these cases is that originated by Dr. Marion Sims, consisting of cutting along the middle line of the cervix on its posterior wall, and thus opening the cervical canal—in effect shortening the cervical canal to a considerable extent. This practice is advocated also by Dr. Emmet (see his modification of this operation shown in fig. 88), and has been practised by others, but so far as can be gathered the operation has not been by any means always successful as a cure for the sterility which has been the principal reason for undertaking it. The preferable method of treating these cases where the condition has existed for some years would, in my opinion, be to remove a portion of the cervix—not, however, so much as to amount to an amputation—and subsequently to employ the stem treatment. Where the condition has persisted for many years the stem treatment alone would not effect a permanent cure. On the other hand, the complete amputation of the whole of the vaginal portion of the cervix shortens it too much.

Speaking generally in reference to the treatment of cases of anteversion it must be understood that *when the malady has existed for some years* a persistent treatment extending over a considerable time is required to obtain a complete cure. If the patient becomes pregnant, that is a considerable help, for unless a miscarriage occurs (which has to be prevented) the uterus in its expansion and growth is favourably affected by the pregnancy. But after it is over a recurrence has to be guarded against. On the other hand, if pregnancy does not occur, the use of a vaginal pessary is required in some cases for a year or two, or even longer, to maintain the effect of the treatment. It is impossible to cure a long-standing case in a few months so far that the patient can dispense with some internal support. In process of time, however, the uterus can be consolidated in its improved shape and position; but this is necessarily a work of time, and it is unreasonable to expect it to be otherwise.

In a certain number of chronic long-standing cases of ante-

flexion it is not advisable to initiate local treatment at all owing to the length of time required for treatment, or other reasons. In some it is necessary to be satisfied with sustaining the uterus a little so as to prevent further descent or flexion. After a gentle treatment of the latter kind it is sometimes found practicable to go on with more radical measures.



## CHAPTER XXIV.

ANTEFLEXION AND ANTEVERSION OF THE UTERUS—(*continued*).TREATMENT—(*continued*).

## PESSARIES FOR THE TREATMENT OF ANTEFLEXION AND ANTEVERSION.—

The Author's 'Cradle' Pessary—Principle of its Action—Two Varieties, the 'Bar Cradle' and 'Crutch Cradle'—Various Sizes required—Various Materials—Modification in Use resembling Gehrung's Pessary—Introduction and Removal of the Cradle Pessary—Precautions in regard to its Use—Dr. Gaillard Thomas's Pessaries—Other Pessaries: Playfair's, Galabin's, Fancourt-Barnes's, Galton's—The Air-ball Pessary.

## THE CRADLE PESSARY.

THE 'cradle pessary,' as it is now termed, was exhibited by me on May 1, 1867, to the Obstetrical Society of London, and is figured in vol. ix. of the 'Obstetrical Transactions.' The instrument had been used by me for three or four years previously and I have now employed it, slightly altered from the original shape, for upwards of fifteen years, in the treatment of anteversion and anteflexion.

The cradle pessary acts on the following principle: It rests on the vaginal floor at two points—one near the entrance, one high up behind the cervix uteri—and with this basis of support it makes pressure upwards and a little forwards through the vaginal roof, about midway between the cervix uteri and the symphysis pubis.

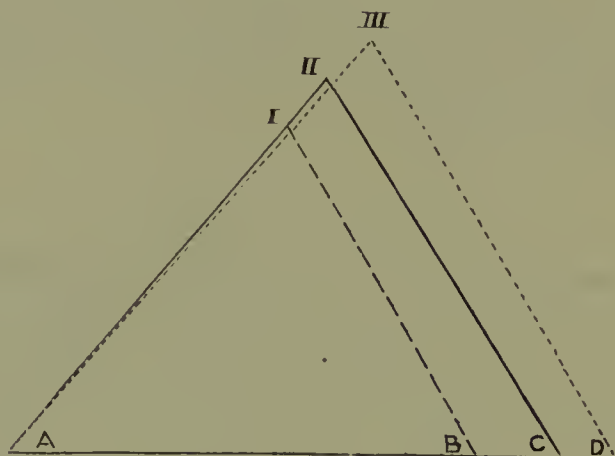
The general outline of the cradle pessary, looked at sideways, is that of a triangle without a base. The triangle has unequal sides, and experience has shown that in all cases this triangle must have sides whose measurements have a certain definite relation one to the other.

The line III A is a little longer than III D.

In the instrument as first exhibited the measurements were a little different, but I have found by long experience the above relation of the sides of the triangle to be the correct one. If a smaller instrument be used a similar proportion between the measure-

ments of the sides must be preserved. I have thought it necessary to give very precise details, because many patterns of cradle pessaries are sold, not at all agreeing either with the original shape or with that now given, and which have not consequently been found satisfactory by many who have employed them.

Most of the instruments sold as 'cradle' pessaries have the grave defect of being too long at the base—*i.e.* the distance A to D (see fig. 89), is too great—the result being to distend the vaginal canal too much. The part which rests on the vaginal floor (A to D) should not exceed in length that shown below for the largest size. In the smaller sizes it should be a little less. A second defect in instruments sold is the want of sufficient

FIG. 89.<sup>1</sup>

elevation of the apex of the triangle, and a third is the placing of the apex of the triangle exactly midway over the base line A D. The proper triangle is not an equilateral triangle, and the two lines A III, D III, should be of unequal length.

I now employ two forms of the instrument, one of which is represented in fig. 90, and the other in fig. 91. The former may be described as a cradle with a bar, the other as a cradle with crutches, one on each side: the terms 'bar cradle' and 'crutch cradle' are convenient distinctive appellations. They require to be of various sizes. Three sizes are generally applicable—No. 1 the smallest, No. 2 medium size, and No. 3 the largest. The following figures represent the No. 3 size (largest).

The action of the cradle pessary is in part a direct action;

<sup>1</sup> In fig. 89 are shown three triangles. The largest indicates the size of the largest-sized cradle pessary; the others are smaller. The base line is that of the vaginal floor.

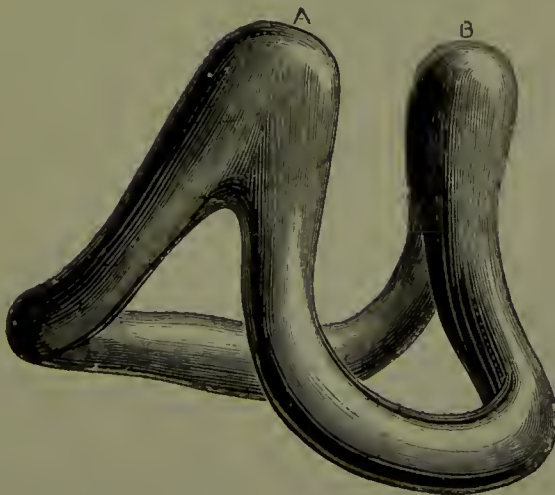
exerting pressure upwards and a little in front of the fundus uteri, it tends to elevate the fundus to its proper position. Moreover, by occupying a certain space it prevents occupancy of that space by the fundus. In addition to this it has a lever action—it draws

FIG. 90.<sup>1</sup>



the cervix forwards, and has therefore a tendency to produce posterior rotation of the whole uterus. The part of the pessary making pressure is the 'bar' or 'crutch,' as the case may be.

FIG. 91.<sup>2</sup>



Sometimes one variety answers best, sometimes the other. The crutch pessary is scientifically the superior instrument, as it prevents lateral movement of the fundus. The present construction differs slightly from that first introduced and represented in the

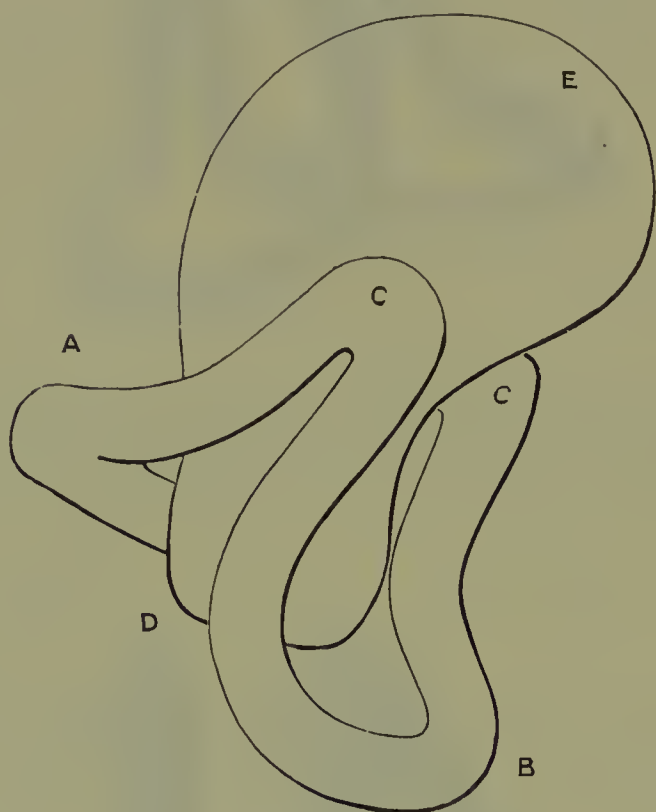
<sup>1</sup> Fig. 90 represents a large size bar cradle pessary.

<sup>2</sup> Fig. 91 shows a large size crutch cradle pessary.



1872 edition of this work in the relative position of the apex of the triangle. The apex is now a little further forward, and it has a better and more perfect action when in position.

In the crutch variety of the cradle pessary, it is highly important that the surfaces of the crutch part, which is in front of the uterus, should be opened out so as to present a concave surface, against which the uterine body rests. This part of the construction of the crutch pessary is not evident on a lateral view. It can

FIG. 92.<sup>1</sup>

only be seen on looking at the pessary from above. The annexed drawing (fig. 92) will render this explanation more intelligible.

In practice it is found that the space between the two crutches A and B has sometimes to be a little increased from that shown in the typical instrument. And it is very necessary that the surface of the crutches be well rounded off, otherwise the pressure is not well borne.

As regards the size suitable to different cases, it is found that in patients who have had children, a large size (No. 3) generally

<sup>1</sup> Fig. 92 represents outline of cradle and uterus to show its action. This drawing is different from the one in the last edition of this work; the large ring should be, as it is here shown, posterior to the cervix. A is the posterior or large ring of the pessary, B is the anterior or smaller ring.

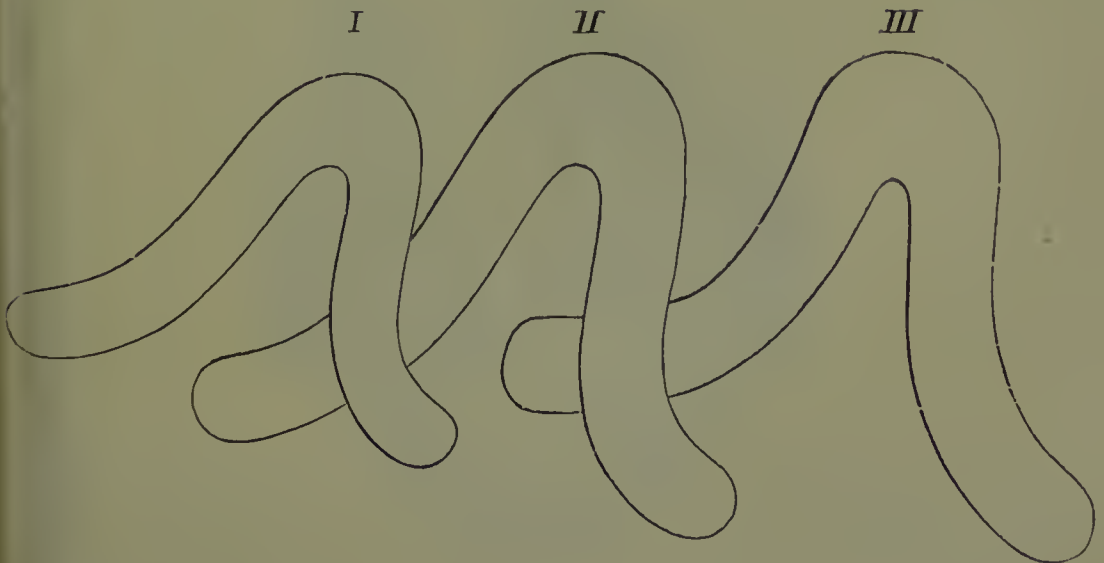
suits best, while in others a smaller size is required. Again, the width of the instrument as a whole sometimes requires to be a

FIG. 93.<sup>1</sup>



little different from the typical measurement. In single women a narrow cradle pessary is essential.

FIG. 94.<sup>2</sup>

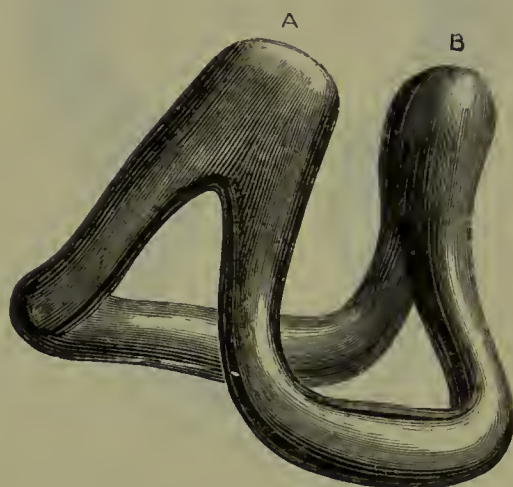
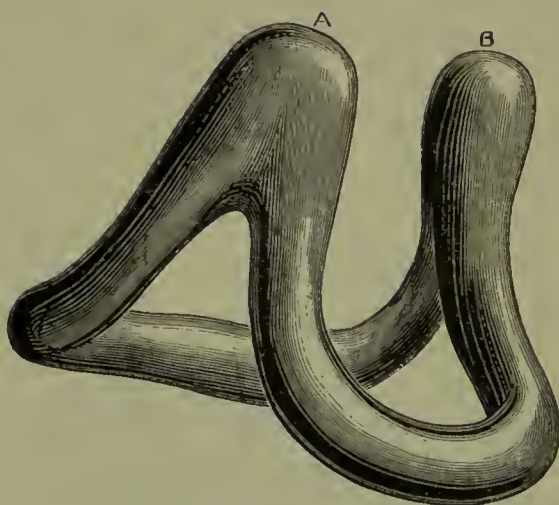


The cradle pessary is made of various materials; the best material for both the bar and crutch varieties is ebonite. Messrs.

<sup>1</sup> Fig. 93 shows a large size crutch cradle as seen from above.

<sup>2</sup> Fig. 94 represents, in a profile view, the three sizes of the cradle pessary marked respectively I, II, and III, such as may be readily made from various sized rings bent into the crutch-cradle shape.

Coxeter of Grafton Street have been at some trouble in making these two varieties of the cradle pessary in ebonite according to my directions, and now keep them in stock. The crutch variety can be constructed extemporaneously of copper wire rings covered with indiarubber, and this admits of easy modification of the size or shape. Ebonite is a very cleanly material, though its hardness

FIG. 95.<sup>1</sup>FIG. 96.<sup>1</sup>

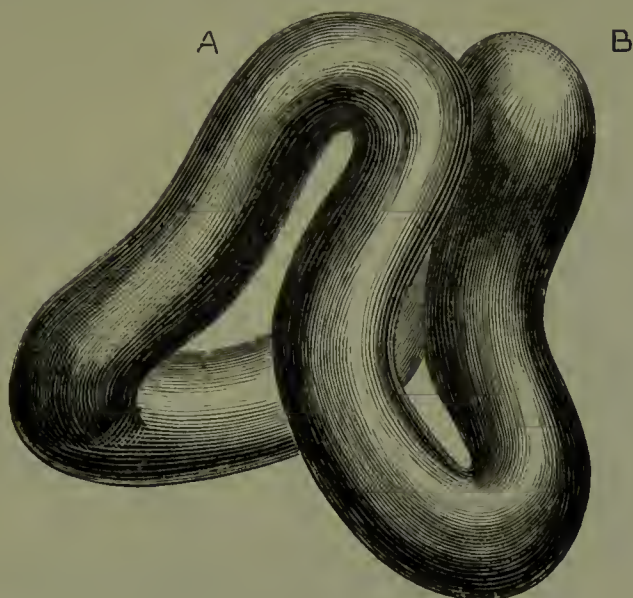
renders it in some ways inferior to the soft rubber-covered pessary. I have employed cradle pessaries of all these varieties of material in very many cases during several years, and find that the great secret of their successful employment is the accurate fitting of the pessary, and the preservation of the normal relational measurements of the triangle to which attention has been already drawn (see fig. 89).

<sup>1</sup> Fig. 95 represents a medium size No. 2 crutch cradle; Fig. 96 a full size No. 3 crutch cradle.



There are certain exceptional cases in which a larger cradle pessary than No. 3 may be required, but they are really exceptional.

*Spring cradle pessaries.*—I have found that cradle pessaries made of German silver covered with indiarubber are sometimes

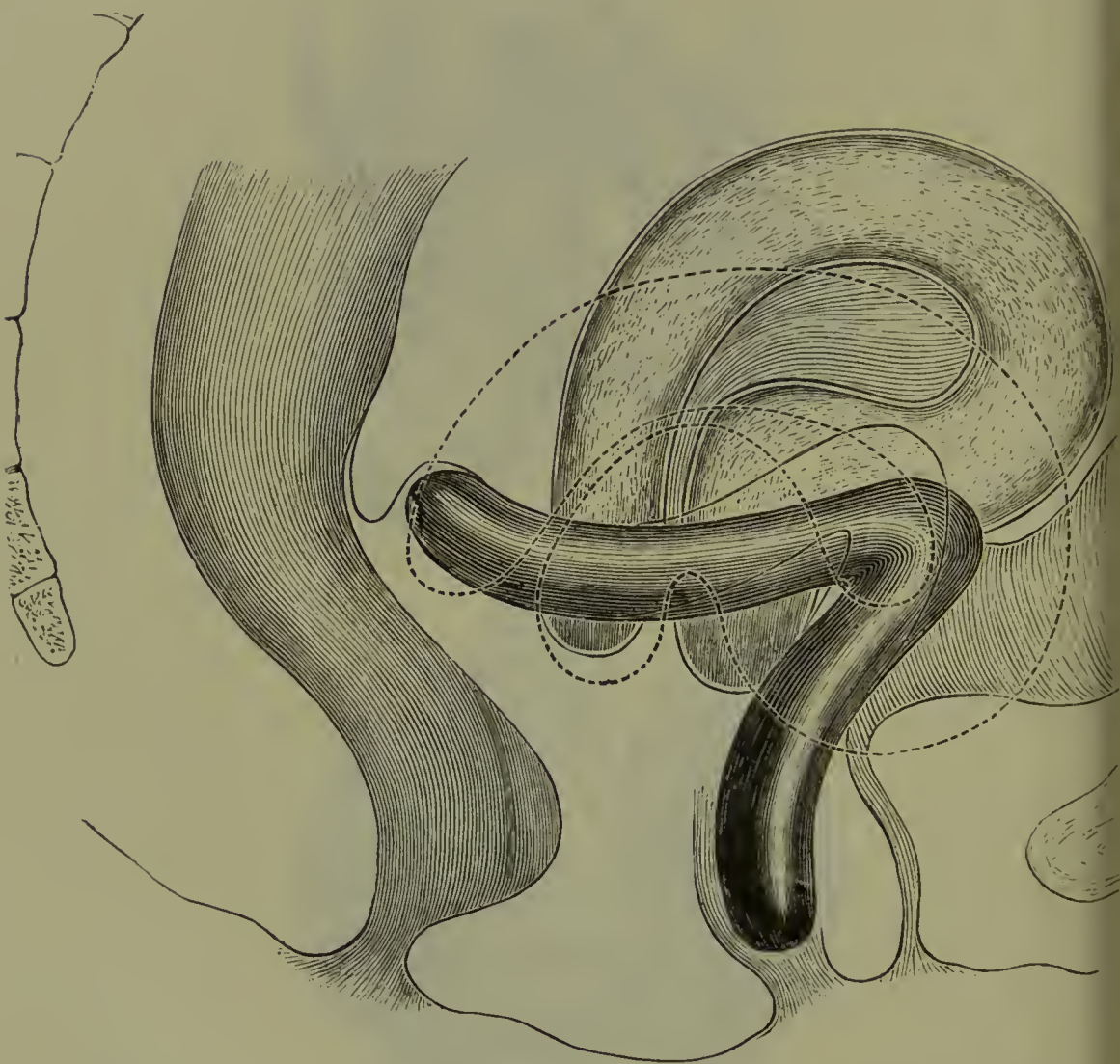
FIG. 97.<sup>1</sup>

FIG. 98.<sup>2</sup>


preferable to others. For cases where greater facility in introduction is required they are very useful. Messrs. Coxeter, Messrs. Meyer & Meltzer, and Mr. Russell have made these pessaries in

<sup>1</sup> Fig. 97 represents an extra thick No. 3 size spring cradle pessary.

<sup>2</sup> Fig. 98 is another view of the same pessary shown in fig. 97.

conformity with my instructions. These pessaries are to a certain extent compressible, and are thus more easily introduced, and retain their shape after introduction. Fig. 97 represents a No. 3 cradle pessary made in this way. The particular pessary here shown is most valuable for cases where the uterus is large and heavy (as in cases of ante flexion with a congested hypertrophied uterus), and it is made purposely a little thicker than is required

FIG. 99.<sup>1</sup>

for ordinary cases. Nos. 1 and 2 made in this material are of course smaller than the one here shown, and the smaller sizes are also covered less thickly with indiarubber.

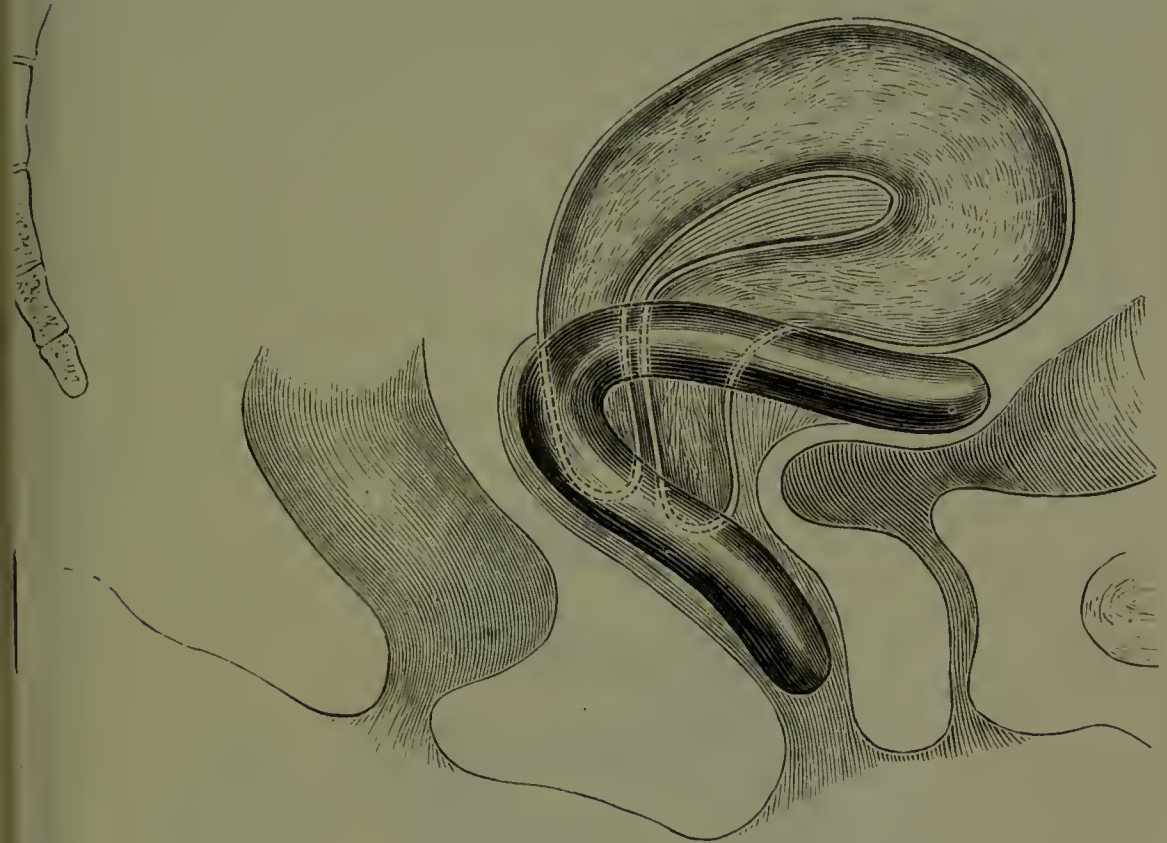
*Another way of using the cradle pessary.*—In some few cases I have found that the cradle pessary acts very well when it is rotated backwards so as to place the part which is ordinarily in front of the body of the uterus behind the os. The plan acts

<sup>1</sup> Fig. 99 shows a large (No. 3) size spring cradle pessary in action.



beneficially in certain cases, but generally the tilting action of the pessary backwards is too strong and may convert the anteversion even into a retroversion, so powerful is it. Fig. 100 shows a cradle pessary a little flattened, so as to lie better on the vaginal floor, and acting as above described.

FIG. 100.<sup>1</sup>



Gehrun's pessary for anteflexion is in principle very like the one above described. I append Gehrun's drawing of his pessary (see fig. 101, page 308), from which it will be evident that the two act alike. I had occasionally employed the modification above described some time before the publication of the description of Gehrun's pessary.

*Introduction of the ordinary cradle pessary.*—The introduction of the cradle pessary is not very easy unless certain points are attended to. The large ring is to be introduced first, the bar or crutch being at this time close to the urethral orifice. When the large ring is thoroughly engaged in the vaginal aperture, pressure must be made, not upon the ring, but upon the bar or crutch part which is close to the urethra, and this part must be

<sup>1</sup> Fig. 100 exhibits a special mode of using the cradle pessary. The pessary is a little flattened to adapt it to this particular object.



pushed inwards under the urethra, giving the instrument a sort of rotation backwards. This little manœuvre, when properly performed, projects the cradle pessary completely into the vagina, and its further introduction is a matter of great ease, as it takes its proper position certainly and readily. Unless these precautions are observed, the introduction may be very difficult. It is best to place the patient on the side with the knees well drawn up, and a good deal of fresh lard or cold cream should be used to facilitate the operation. In unmarried patients requiring the use of the instrument the difficulties of introducing the pessary may render necessary the aid of an anæsthetic.

FIG. 101.<sup>1</sup>

In cases where any considerable degree of resistance is experienced in elevating the uterus the use of the cradle pessary must be accompanied with precautions in regard to the position of the patient. The horizontal position is quite essential at first. The sitting posture is generally more uncomfortable during the first few weeks of wearing the cradle pessary than it was before, and must be generally avoided for a time at least. Although the instrument really presses on the bladder it rarely produces any irritation of this organ. The instrument sometimes presses a little unduly on the rectum if there be too much standing or sitting, and the action of the bowels is frequently a little hindered by its presence. To obviate this occasional difficulty a daily enema is the most appropriate remedy. The ebonite in-

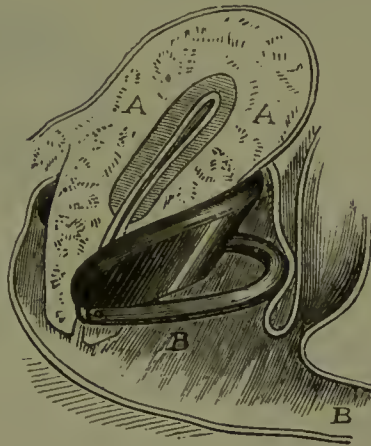
<sup>1</sup> Fig. 101 is Gehrung's drawing of his anteflexion pessary.

strument, when well fitted and working well, may be worn for months without difficulty of any kind, but, until it has done its work, will of course require to have its action supervised and regulated. But when a cradle pessary made of a hard material has been worn for some months it should be removed and a soft cradle used for a time. When the soft india-rubber varieties are employed, more frequent changes and daily injections with a little antiseptic fluid may be required, especially just after the periods are over.

The removal of the cradle pessary may be attended with difficulty unless certain precautions are employed. The pessary must be drawn backwards towards the anal aperture as well as downwards, and it will be found easier to remove it by hooking the forefinger into the pessary from behind and not from in front of it.

Various other pessaries have been employed in the treatment of anteversion and -flexion. Some of these will now be mentioned.

FIG. 102.<sup>1</sup>

FIG. 103.<sup>2</sup>


Dr. Gaillard Thomas employs two or three pessaries of his own design. The principle adopted by him is to use a Hodge-shaped pessary as a foundation, and a bar in form of an arch is carried from this in front of the cervix. This arch moves on hinges, so that it can be inserted more readily.

Some of Dr. Thomas's instruments are represented in the annexed figures, taken from the last (5th) edition of Dr. Thomas's work.

Dr. Thomas has also now an instrument which is a combination of the stem with a vaginal pessary. It differs little from the

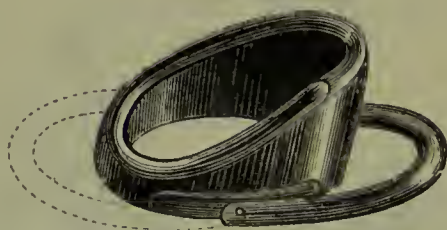
<sup>1</sup> Fig. 102 shows one form of Thomas's pessary. It is in ebonite in a single piece.

<sup>2</sup> Fig. 103 shows a hinged instrument of Thomas's for anteversion.

shape of the other vaginal pessary, but there is a sort of cup which supports a stem, the stem being of course placed in the uterus; a piece of thread is attached to the stem to facilitate its withdrawal after removal of the vaginal part of the pessary.

There are other vaginal pessaries which have been invented for the treatment of anteversion and anteflexion, acting by pressure through the vaginal roof—viz. those of Dr. Playfair, Dr. Galabin, and Dr. Fancourt-Barnes.

Hitherto instruments have been described acting wholly within the vaginal canal; other instruments have been employed acting from without. As a rule, certainly, any instrument of the latter kind is objectionable to the patient and requires constant attention. Dr. Thomas describes a modification of Cutter's pessary for retroflexion, but shaped so that the pressure is applied in front of the uterus, and fixed in a similar way by means of a tape passing from the stem to the waist behind. Instruments have been employed by others, the fixed point for which is obtained by attaching a stem

FIG. 104.<sup>1</sup>

to a pad in front, kept in place by a pelvic band passing round the pelvis. Dr. Galton exhibited such an instrument at the Obstetrical Society of London in 1874. The principle of this latter instrument is similar to that of an instrument before employed for prolapsus of the uterus, and in some very rebellious cases there is no doubt that such an instrument would be found very useful.

*The air-ball pessary.*—Some few years ago I was in the habit of employing an air-ball pessary rather extensively in the treatment of anteflexion, and I still use it in a few cases where the cradle pessary is for various reasons not found convenient.

The air-ball pessary is a very efficient instrument up to a certain point, and in cases where the uterus is very heavy or large, or very sensitive, it is very serviceable. The instrument is an india-rubber ball made *perfectly round*, and it has a small tube attached, by means of which it is inflated after introduction. The tube has a stop-cock; and a brass air syringe which fits the stop-

<sup>1</sup> Thomas anteflexion pessary, modified by Mundé, with hinges sunk.



cock is the means of introducing the air. The apparatus is well made by Messrs. Meyer & Meltzer. The pessary is made in various sizes. The average size required for married patients is a ball one inch and three-quarters in diameter when not distended. After insertion this is inflated until its diameter is two inches. This precise amount of dilatation can be ensured by introducing it empty, having ascertained previously how many strokes of the piston of the syringe are required to produce the necessary degree of distension.

It is extremely important that the ball should be quite round, and that the distension should not go beyond what is required. A two-inch diameter ball sustains the uterus in the proper manner, but if larger it displaces it as a whole backwards.

One drawback to the air pessary is the presence of the tube externally. This should be fastened in front to a piece of bandage tied round the waist. Another is the liability of the stop-cock to get out of order, when the air escapes. But when properly managed it is a very useful instrument, and has the advantage that it can be readily inserted and removed by the patient herself. Careful instructions should be given in order that the pessary may continue to act properly.

## CHAPTER XXV.

## LATERIFLEXION, LATERAL DISPLACEMENT AND ALTERNATING ANTE- AND RETROFLEXION OF THE UTERUS.

LATERIFLEXION OF THE UTERUS.—Treatment.

ALTERNATING ANTE- AND RETROFLEXION.—Nature of these Cases—Condition of the Tissues of the Uterus—Treatment, General and Mechanical.

## LATERIFLEXION OF THE UTERUS.

As a general rule flexion of the uterus is very decidedly either forwards or backwards, although it is common enough to find that the inclination of the uterus is a little to one side, the flexion not being exactly in the middle line. But in some few cases it is found that the flexion is very markedly in a lateral direction. I find, on referring to my case-books, that during six years the uterus was in a condition of decided lateriflexion in three cases—not a large number, and showing that the condition is a rare one. The relation of the uterus to the broad ligaments, and its lateral fixation by these structures, prevents the displacement laterally.

Of the three cases referred to, one was a single lady, aged 24, who had been thrown from a horse a year before applying for advice, since which she had been subject to considerable pain and incapacity for locomotion. In the other two cases there was no history of a severe accident: one patient was 46 years of age, and the displacement was of long standing; the other was only 18, and had walked excessively since her marriage, which took place nearly two years previously.

I have seen other cases in which the uterus was anteflexed—the uterus being very distinctly inclined to one side; but these are not included in the above category.

The diagnosis of these cases can only be certainly made by means of the sound.

*Treatment.*—The treatment I have found successful consists in the employment of the sound, whereby the uterus is replaced, and a careful positional treatment. If the uterus is inclined to the left side the patient should lie principally on the right. The

horizontal position is of course requisite. As regards the use of pessaries in such cases, it is not easy to adjust one which shall carry out the indications present. When the uterus is decidedly in a state of lateriversion, but there is a slight inclination forwards, a cradle pessary can be fitted so as to meet the difficulty. For this purpose the crutch cradle pessary should be so bent that the crutch projects more backward than usual on the side to which the uterus inclines. The stem pessary would undoubtedly be the best instrument to employ when the uterus is very decidedly bent to one side.

#### LATERAL DISPLACEMENT OF THE UTERUS.

I have seen a few cases in which the uterus, without being flexed, was displaced very decidedly from its median position in the pelvis, this condition being the result of an accident or fall, and giving rise to very protracted and obscure suffering.

Thus in one case a young lady fell down stairs, broke her arm, and was laid up for some time with it, but when she attempted to walk found it difficult and painful to do so, and she became affected also with 'hysterical' symptoms. On exploring the pelvic interior the uterus was found packed away, as it were, in the left posterior corner of the pelvis, where it had evidently lain since the injury. By positional treatment the uterus was brought to the middle of the pelvis with satisfactory results.

In another the patient had sustained a severe fall on the floor from sitting down when there was no chair. Severe chronic obstinate pain in the back resulted, and it was subsequently found that the uterus was driven backwards close to the sacrum, and a little to one side.

#### ALTERNATING ANTE- AND RETROFLEXION.

A very important and interesting class of cases are those in which the flexion alternates from backwards to forwards, or *vice versa*.

These cases are not very common, but they are by no means rare.

I first became acquainted with this alternating variety of flexion eight years ago while attending a case which proved to be one of this kind and which was under observation for a considerable time. This case was very difficult to cure, and the facts observed from time to time in connection with it furnished me with information which has been found very valuable in other similar cases.

These alternating cases are really cases in which the uterus is extremely soft, and they are typical cases of the 'soft' uterus.



This softness is the result of mal-nutrition. The case above alluded to was that of a lady threatened with phthisis, and in a low state of nutrition generally. There was very intense uterine dyskinesia; complete inability to walk more than a few yards. The uterus was found retroflexed. Treatment for this retroflexion was for a time successful, but it afterwards failed, and it was then found that the uterus was anteflexed. Again, a fresh adjustment was made, but it was found that the slightest pressure in front produced retroflexion, while the slightest pressure behind the uterus produced anteflexion. The uterus was so weak that it had no power to keep straight. After observing these oscillations long enough to be aware of the true nature of the case, a peculiar shaped pessary was applied which had the effect of simultaneously giving pressure in front and behind the uterus. When this was got into proper working order the patient was able to walk and a cure was eventually obtained by supporting the uterus and carefully improving the general health by a suitable dietary.

I may mention another case which has been under observation for the last eight or nine years. A young married lady was found suffering from anteflexion, coupled with very great debility—chronic starvation. The uterus was treated successfully and the patient had her first child about two years afterwards. After the pregnancy was over the uterus became again troublesome and a cradle pessary was again required; a second pregnancy with subsequent recurrence of the flexion, and a third with similar result; a fourth pregnancy occurred after a longer interval, and after it had ended satisfactorily the patient again came to me in consequence of feeling ill and in pain. On this last occasion I found to my surprise that the uterus was not anteflexed, as I expected to find it from former experience, but retroflexed. This extremely interesting case, with all the circumstances of which I am perfectly familiar, offers an example of a uterus originally very soft and which has never, spite of repeated pregnancies, become really firm and solid. The case is a rare and probably exceptional one in regard to the obstinacy of the case, but it teaches some valuable lessons.

I have seen at various times a considerable number of cases less marked than those above described, but well characterised. In some of these cases no internal support was used, the alternating flexion being nevertheless observed to occur. In other cases the alternation followed on the use of a vaginal pessary, a retroflexion changing to an anteflexion under the use of a Hodge-shaped pessary, and the opposite result following from the use of a cradle

pessary in a case of ante flexion. This is a very important circumstance to bear in mind, for a pessary which does its work well and satisfactorily at first may be found afterwards not to be acting well. In those cases where this unusual flexibility of the uterus exists the pessary (properly applied) tilts the uterus, not only into its place, but *may* have the effect of producing the opposite kind of flexion.

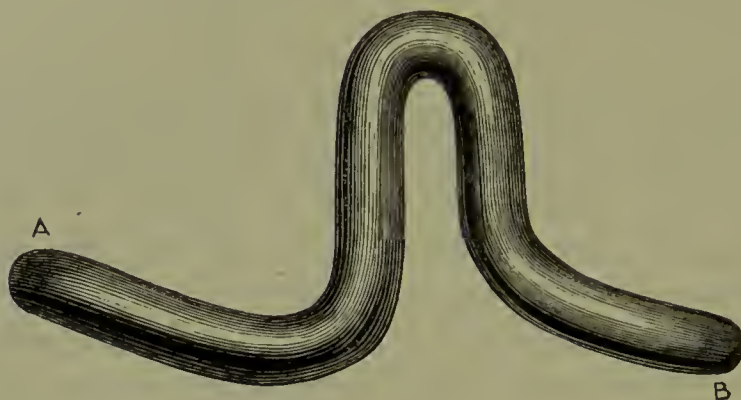
This leads me to make the remark that I have on some few occasions been consulted by patients who have been subjects of retro flexion and treated by the Hodge-shaped pessary by other practitioners, but the patient was still in search of relief. In these instances I have in five or six cases found that the uterus had gone over from retro flexion to ante flexion. In one case very great anxiety and trouble had resulted from the supposed impossibility of giving the patient relief, but the true cause was found to be the over-action of the pessary. This over-action may of course in some cases be real, the pessary being worn too long or being too large, but that explanation does not apply to the cases I have now in my mind, in which it was certain both that the original diagnosis was right and that the pessary was skilfully adjusted.

These facts offer evidence of the necessity for carefully regulating the action of vaginal pessaries and for ascertaining that they are acting as it is intended. This can only be done certainly by the careful use of the sound.

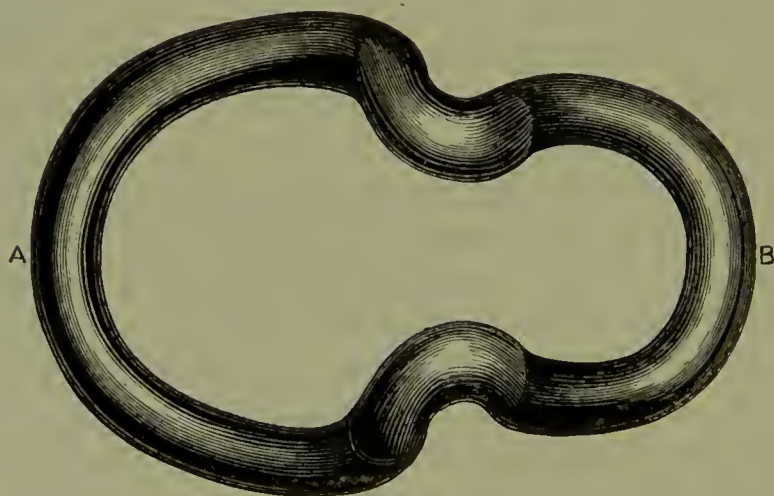
This seems to be the proper place for pointing out that if the case be originally one of ante flexion and a Hodge-shaped pessary be employed, one effect is very likely to occur—viz. an exaggeration of the ante flexion. I have met with cases where this result has been observed, the Hodge pessary having been used either under a mistaken notion of the nature of the case or with the idea of giving the patient relief from the ante flexion. The latter idea is, I need hardly say, in my opinion, very erroneous, as the cases in question which have come under my notice have sufficiently proved.

*Treatment of alternating flexions.*—These peculiar cases require a corresponding peculiar treatment. Probably the difficulty is capable of being surmounted in more than one way. The plan which I have followed in the few cases which have come under my notice, and which has been successful, consists in using a pessary which is a combination of the Hodge and the cradle pessary. It might be described as a cradle pessary with the posterior ring elongated so as to resemble the corresponding

part of the Hodge pessary. The accompanying drawing gives a better notion of the instrument than a description. The object of the instrument is to give a support both behind and in front of the uterus, and the pessary in question has been found to fulfil

FIG. 105.<sup>1</sup>

these indications in the cases in which I have employed it. In some of these cases it is probable that the pessary known as Fowler's pessary would prove serviceable. This is an instrument

FIG. 106.<sup>2</sup>

made of ebonite, and having a conical or funnel shape, into which the uterus falls. It is made in various sizes.

Another instrument which would fulfil the indications required is the stem pessary. I have not employed it, however, in the cases of alternating flexion which have come under my notice, having found the arrangement above described to answer extremely well.

<sup>1</sup> Fig. 105 shows a profile view of the 'alternating' flexion instrument. A should be placed behind the cervix; B corresponds to the vaginal aperture.

<sup>2</sup> Fig. 106 represents a ground plan of the same instrument.



In conclusion it must be stated that no amount of precision and mechanical skill will be effectual in giving relief in these cases unless it be conjoined with great care and attention in regard to the strengthening of the uterus. Careful and incessant nutritional treatment for as much as a year or more will be required in a case of alternating flexion in order to really cure the disease. If this latter element in the treatment be neglected, the uterus will, after the removal of the pessary, relapse into its former troublesome condition.

## CHAPTER XXVI.

INCISION AND DILATATION OF THE CERVICAL CANAL OF THE  
UTERUS.—STEM PESSARIES.

INCISION OR DIVISION OF THE OS AND CERVIX UTERI.—Various Methods of performing the Operation—Means for maintaining the Canal Open afterwards—Dangers of the Operation—Treatment of Cases of Imperforate Os Uteri.

DILATATION OF THE CANAL OF THE UTERUS.—Dangers of the Procedure—Means of effecting Dilatation—Various Kinds of Tents—Method of Introduction—Metallic Dilators.

STEM PESSARIES.—Various Kinds—Simple Stems—Stems with supporting Vaginal Framework,

## INCISION OR DIVISION OF THE OS AND CERVIX UTERI.

INCISION or division of the os and cervix uteri is an operation practised chiefly for the relief of dysmenorrhœa or for the cure of sterility. But it is also a means of facilitating the rectification of the shape of the uterus in chronic cases of distortion of the organ.

In order to enlarge the calibre of the uterine canal, Sir J. Y. Simpson first employed a *metrotome caché*, by means of which he effected an incision extending up to the os internum, first on one side and then on the other.

FIG. 107.



The knife was guarded until the instrument had been introduced sufficiently far. Various modifications of this instrument have been employed. Dr. Greenhalgh's metrotome is double bladed, and by it a bilateral section of the cervical canal is made, rather wider below than above. Dr. Marion Sims employs a pair of strong curved scissors, by which the cervix is cut through on each side up to its junction with the vagina, and the canal above this point is then incised on each

side by a small razor-bladed knife (see fig. 107) with a blunt point, to the extent required, the result being that an incision having a pyramidal shape, and widest below, is produced. Dr. Barnes uses the scissors in like manner as a means of opening up the lower

part of the canal. Mr. Coghlan's metrotome is adapted for making an incision of the internal os; it has a probe point, and is then flattened out with a short cutting edge on each side. In some cases a careful use of a very small probe is required to inform us as to the direction in which the cervical canal goes, and a narrow director is now and then useful in guiding the knife when we are dealing with the internal os uteri.

It is very desirable to limit the extent of the incision at the external os uteri as much as possible. There is no doubt that it is unwise to divide the cervix widely, as was formerly done; and it is only necessary to incise the os uteri externum to such an extent as to admit of free access to the internal os uteri, and of the manipulations required for incising it, and inserting material for maintaining the aperture patent. The annexed drawing shows

FIG. 108.



the extent of the incision at the external os, as practised by Dr. Marion Sims, but it seems desirable to limit it within narrower bounds, and to avoid cutting quite through the cervical wall. The *discission* of the os, as it is described by Peaslee, is limited in this way. There are cases in which the os externum is so small that the wall must be cut quite through to a certain extent.

The external os may be incised by a pair of curved scissors or by Sims's knife, and the internal os by the latter instrument. During the operation the patient is on the side in the Sims's position, the duck-bill speculum being used, and the os drawn down by the tenaculum or hook.

After the incision a small pyramidal-shaped piece of lint, steeped in perchloride of iron and glycerine, is carefully packed into the cervix, and to retain it *in situ* a piece of wetted bandage a yard or so in length is packed in the vagina. The bandage is drawn away at the end of twelve hours, but the cervical plug



remains for two or three days. After removal of the cervical plug an ebonite plug can be inserted. Some operators introduce one immediately after the incision. The difficulty in maintaining the aperture is great, and has been mentioned by all who have performed the operation. After a month or six weeks the wound may become greatly contracted, but the canal does not usually return quite to its former dimensions.

The ebonite stem is preferable to other methods for afterwards preventing the canal from closing; for to maintain the patency of the canal at the situation where the contraction mostly happens—viz. at the internal os—is often a matter of extreme difficulty. A stem of ebonite acts in a double capacity, keeping the canal straight as well as open.

The dangers of incision of the cervix uteri<sup>1</sup> are as follows:—

1. Hæmorrhage is liable to be very considerable when the uterus is deeply incised; but this is not likely to occur when the depth of the cut does not exceed half the thickness of the uterine wall. Cases in which hæmorrhage has been troublesome are probably cases in which incisions have been made deeper than this. The bleeding is generally capable of easy control by means of the plug.

2. The danger of septicæmia is the chief one. It is very slight when ordinary precautions are taken. Dilatation appears to be dangerous after a cutting operation, and it is probably most dangerous when the incised surfaces are covered with puriform secretion. It may be connected with undue depth of the cutting operation. In any case it is no doubt dependent on entrance of putrescent material from the canal of the cervix into the cut vessels (veins or lymphatics) of the uterus. The free use of carbolised oil in manipulating the cervix uteri, and especially avoidance of dilatation during the few days after the operation, are recommended.

<sup>1</sup> Dr. Montrose A. Pallen (1877) gives a valuable summary of the subject of incision and division of the cervix uteri for dysmenorrhœa and sterility, in *Am. Journ. of Obst.*, vol. x. p. 364. It appears that Dr Sims has since 1874 adopted a plan of incising the cervix, and then dilating it directly after incision by a dilator; after which operation he inserts a plug of glass, ebonite, or aluminium into the cervix, which is retained for from two to six days afterwards, together with iron cotton. Dr. Pallen states that since 1865 he has himself operated 337 times, the incisions varying in different cases. The results were in fifty per cent. relief of the dysmenorrhœa and thirteen to fourteen had children, while a quarter were not benefited. In three cases cellulitis followed. In two death occurred, but not as a result of the operation. Comparing these results with cases in which Dr. Pallen used tents, it appears that in 150 cases, where tents were employed, two died rapidly of metro-peritonitis, while fourteen had pelvic cellulitis.

*Treatment of cases of imperforate os uteri.*—In some rare cases the os uteri is imperforate congenitally, and there is no outlet for the menstrual fluid. And the os uteri may become occluded after labour, from effects of operations, &c. Under these circumstances, also in cases of physometra, we may be called upon to evacuate the contents of the uterus artificially.

In the congenital cases, we have to make a communication between the uterus and vagina in the best manner the circumstances may admit. We endeavour to find the os uteri, and not succeeding in this, search is made for the cervix. We may fail in discovering any trace of either, the distension of the uterus having obliterated all traces of it. In such a case a point is to be chosen which is nearest the supposed seat of the cervix, and the opening is to be made at that point, taking care that the instrument used be directed towards the centre of the enlargement, so as not to run a risk of wounding the bladder or rectum. In reference to the manner in which the uterine contents are to be allowed to escape, certain precautions are necessary. It is, I consider, advisable to allow the fluid to escape very slowly. After the first part of the treatment—the evacuation of the fluid—has been gone through, we have to take measures for maintaining the canal of the cervix open. This is not unfrequently found troublesome, there being a tendency to reclosure of the canal, necessitating a new operation. Gradual dilatation by means of bougies or by the use of tangle tents is most appropriate under such circumstances.

The puncture of the tumour from the rectum is only admissible in cases where the other operation from the vagina is absolutely impracticable.

In cases of acquired occlusion of the os uteri or cervical canal the canal is to be opened and made pervious by a carefully performed operation, the nature of which must be determined by the nature of the case. In many of these cases it is possible to find out the track of the old canal by means of probes, and, if this can be done, it renders further procedures more easy. A small canula and trochar, long enough to reach the uterus, is sometimes necessary to evacuate the fluid. The canal once opened, the occasional use of the sound, or of graduated metallic bougies, is required to preserve its patency.

## DILATATION OF THE CANAL OF THE UTERUS.

Dilatation of the uterine canal is a procedure required in a certain number of cases and for various reasons. It is an operation of delicacy and not seldom attended with considerable difficulty. And it is a procedure which is not unattended with danger.

The objects for which the operation is undertaken are, as already remarked, various: To facilitate introduction of a stem pessary, to relieve dysmenorrhœa, to cure sterility, to explore more completely the uterine cavity, as a help towards the cure of ante flexion or retro flexion of the uterus, &c.

It will be well to speak in the first place of the dangers of the procedure. The great danger is the setting up of the pyæmic process, or local cellulitis. Sponge tents, under certain circumstances, cause rapidly fatal pyæmic disease and peritonitis; but other dilating agents are also capable of producing serious or even fatal illness of a similar kind. Abrasion of the cervical canal, or a partly healed wound of the same, appears to favour occurrence of dangerous symptoms. Production of a wound, or laceration or contusion of the cervical canal, in the process of dilatation may lead to the same result, and this is more especially liable to happen when puriform secretions are lying either in utero or in such a position that they obtain ready access to the abraded or lacerated surface. The action of a sponge tent is rapid, and the stretching of the cervix produced is considerable; the sponge, if not rendered antiseptic, very speedily undergoes a putrescent change, and after a few hours is generally fœtid. The expanded and partly abraded surface of the cervix is then in contact with the putrescent product, absorption occurs, and serious symptoms set in forthwith—at least, this result may occur. Introduction of a second sponge tent immediately on withdrawal of the first, especially if the first has been allowed to remain as long as two days, is still more likely to prove prejudicial. Repeated slight abrasions or lacerations of the cervical mucous membrane, liable to be produced by use of bougies or by metallic dilators, may give rise to similar results. The presence of a wound or abrasion of the cervix seems, so far as my experience goes, to be the predisposing condition; but the presence of an exciting cause such as putrescent or puriform fluid at the spot so abraded or wounded, appears to be equally necessary.

In illustration of the foregoing statements, it may be



mentioned that at a discussion on sponge tents at the Philadelphia Obstetrical Society in December 1873, various cases of death were mentioned by speakers: (1) Death after insertion of a third sponge tent, the last retained two days, patient having moved contrary to order; (2) death after a second tent, interval being two days; (3) death after a third tent, interval between each one day; (4) death after use of three sponge tents.

Sponge tents are unequalled for certainty and rapidity of action, but must be used with great care. One operation appears to be safe enough, but not so a repetition of operations. Sponge tents are sometimes antisepticised before being used, but it seems difficult to render them certainly aseptic. Sponge is certainly better adapted for cases requiring quick and extensive dilatation than for cases when slight dilatation only is needed. Thus it is not easy to thread the internal os as a primary operation in cases of acute flexion—the stiffness of the tent becoming often lost before it has passed the narrow part of the canal. When sponge, or indeed any like material, is employed, carbolic injections should be always freely employed.

*Sea tangle.*—Tents of this material, first introduced by Dr. Sloan of Ayr, have been frequently used during the last few years. They are tolerably manageable, and very powerful in action. The material is very hard when dry, and can be shaped by a knife. Tents of this material are sometimes made hollow, as first suggested by Dr. Greenhalgh, to induce more rapid swelling. When the uterine canal is much flexed or tortuous, the introduction of the tent is not easy unless it be a little softened before introduction. And under any circumstances the operation is one requiring some little skill and attention in order that it may be successfully carried out.

In cases where it is required to dilate the cervical canal extensively, bundles of sea-tangle tents may be employed according to Dr. L. Atthill's suggestion. Such a dilatation may be required in order to obtain access to an intra-uterine polypus or fibroid tumour.

The slippery elm and tupelo are other materials from which uterine tents are constructed.

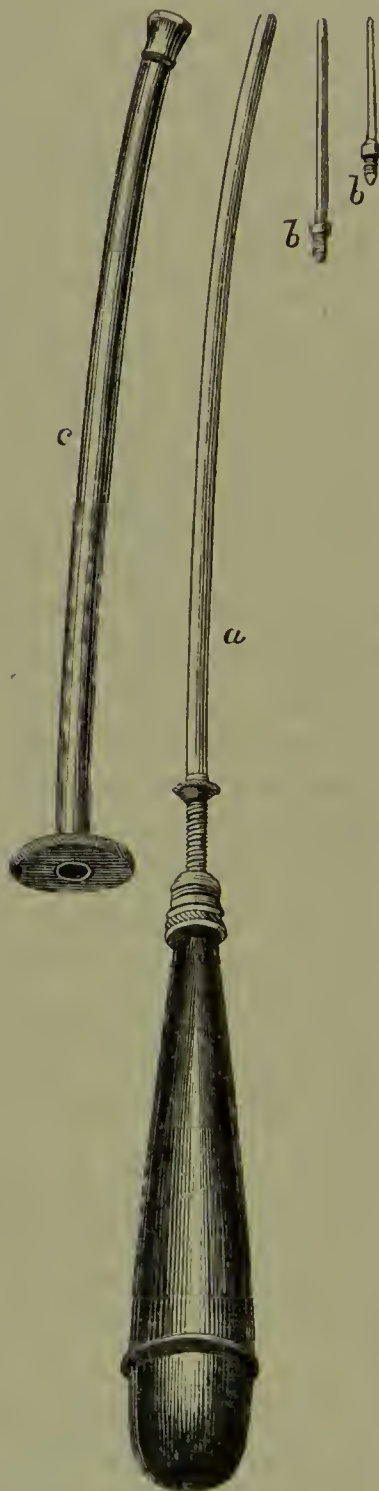
In introducing a sponge tent, the lateral Sims's position is the best, the duck-bill speculum being employed and the os drawn down and fixed by a hook. This has also the effect of somewhat straightening the uterus and thereby facilitating entry of the tent. An instrument such as that shown in fig. 109 is a good

sponge tent introducer. Six or eight hours is the proper time for the action of the tent : it must be then removed.

FIG. 109.



FIG. 110.



Another good tent introducer is Barnes' (fig. 110), in which a metallic pointed needle supports the tent during introduction, and is readily detached from it when it is well placed in the cervical canal.

In order to procure proper dilatation of the uterine canal, the tent must be made to pass through the internal os uteri and be there maintained while it is at work. Otherwise it is found, perhaps, that the tent has slipped, and no material advance is made. The tent should of course be long enough to reach just beyond the internal os; and it should project a short distance into the vaginal canal. The tent should be always firmly attached to a silk or strong hemp ligature for purposes of withdrawal.

Another method of dilatation is that known as Mr. Lawson Tait's,<sup>1</sup> consisting in the introduction of a series of three box-wood conical plugs into the os uteri, and applying pressure thereto from the outside by means of an india-rubber elastic band. The first plug is removed after a few hours when it has done its work, and is replaced by a larger one; the second by a third. In this way the canal is gradually dilated. The plug is kept in place by a vaginal stem which screws on to the plug, and the elastic band is attached to this stem outside the vagina. The elastic thread is fixed to a bandage encircling the waist.

*Metallic dilators.*—These are undoubtedly convenient and efficacious in cases where slight dilatation only is required, and are also very useful, according to my experience, in the treatment of chronic flexions, especially anteflexion. A set of metallic bougies regularly graduated, very applicable for these purposes, are now kept by surgical instrument makers. There are various metallic dilators—Dr. Marion Sims's, Dr. Priestley's, Dr. Ellinger's, &c. After having tried several of these, I have found the most serviceable one which I had constructed by Coxeter some few years since, which is a modification of one originally made for the late Dr. Rigby by Mr. Ferguson of Giltspur Street. It is on the principle of a glove-stretcher, and can be inserted wherever the ordinary sound can be made to pass. It possesses a knob like that of the ordinary sound to indicate the depth of insertion, and should also have a slight groove cut on the opposite side for similar purposes. After insertion, the two blades are opened by a screw slowly and deliberately, and the force exercised is expended most just at the spot where it is most needed—*i.e.* the os uteri internum. It is an instrument of very great power, and should therefore be employed very carefully. It has the great advantage that it does not slip out of the canal. I employ it frequently, but am careful to do only a very little at a time with it, and generally to allow an interval of two days between each dilatation—that is

<sup>1</sup> *Lancet*, November 1, 1879.



to say, in cases where the instrument is used for the purpose I most commonly employ it, in the treatment of a chronic flexion,

FIG. 111.<sup>1</sup>FIG. 112.<sup>1</sup>

and with the view of permanently straightening a tortuous and contracted canal.

<sup>1</sup> Fig. 111: Graily Hewitt's uterine dilator (reduced). Fig. 112 shows a lateral view of the part of the instrument which is introduced into the cervical canal (actual size).

## UTERINE STEMS.

Uterine stems may be divided into two classes—(1) Those which are intended to be used alone, and (2) those which are

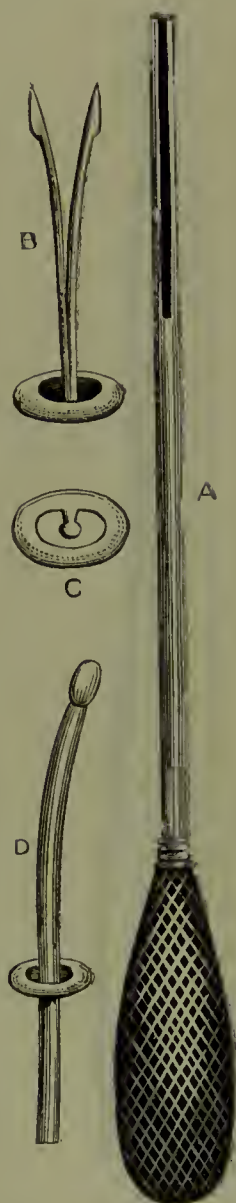
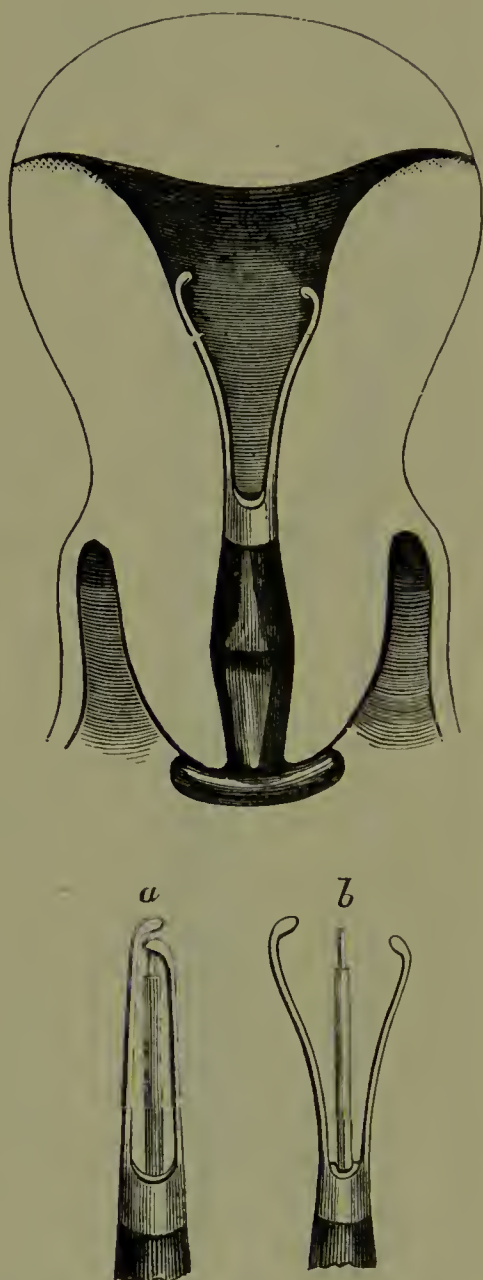
FIG. 113.<sup>1</sup>FIG. 114.<sup>2</sup>

used in conjunction with a supporting vaginal disk or framework.

<sup>1</sup> Fig. 113 represents Dr. Priestley's dilator.

<sup>2</sup> Fig. 114 represents Dr. Marion Sims's dilator

*Simple stems.*—These are generally provided with a small button-shaped portion, which, when the stem is in position, rests on the vaginal floor.

FIG. 115.<sup>1</sup>FIG. 116.<sup>2</sup>

With few exceptions the material employed has been rigid—ebonite (hard rubber), metal of various kinds, and glass (Dr. Meadows).

<sup>1</sup> Fig. 115 represents Dr. Chambers's stem and apparatus for introduction. (*Obst. Journ.* vol. i. p. 2.)

<sup>2</sup> Fig. 116 represents Dr. Granville Bantock's stem and mechanism for introduction. (*Obst. Journ.* vol. xiii. p. 1.)



*Various shapes.*—Dr. Chambers recommends a modification of the late Dr. Henry G. Wright's stem. It is a vulcanite stem, double; but the two arms are kept together until the stem is inserted by the stylet. Withdrawal of the stylet allows the arms to separate, and the opening out of the two arms prevents the escape of the stem.

Dr. Granville Bantock's stem is partly of vulcanite, and the intra-uterine part consists of two arms of German silver; these latter spring apart and retain the stem after introduction.

FIG. 117.<sup>1</sup>FIG. 118.<sup>2</sup>

Dr. Clement Godson's stem is of aluminium, made in five sizes; it is retained by a spring within the tube, which projects at apertures near the extremity and within the uterus.

Mr. Lawson Tait's stem is a galvanic instrument with a slight projection of india-rubber to act as a retaining agent.

Dr. Alfred Meadows's stem is of glass with a small button of bonite.

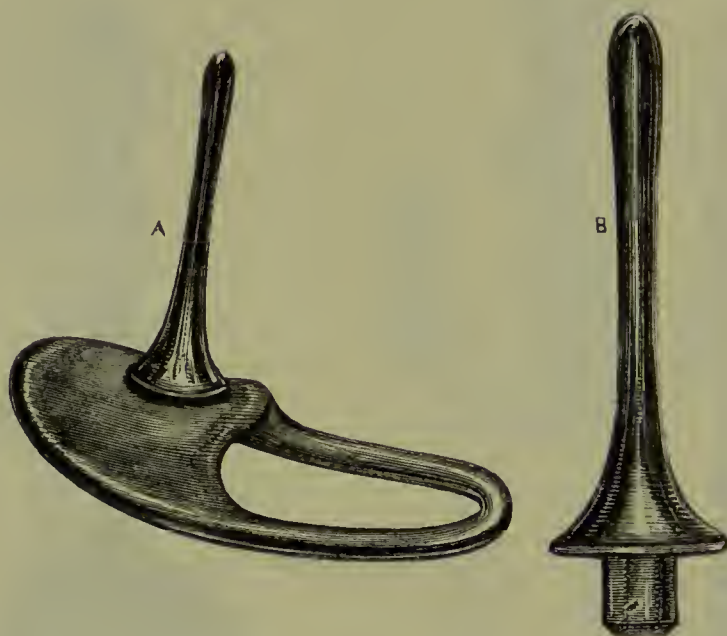
<sup>1</sup> Fig. 117 shows Dr. Clement Godson's stem. (*Obst. Journ.* vol. xvii, p. 286.)

<sup>2</sup> Fig. 118 represents Mr. Lawson Tait's stem.

A quite elastic stem, composed of india-rubber tubing, was recommended by the late Dr. Squarey.

*Stem with supporting vaginal framework.*—The instrument here figured, which has been sometimes termed the ‘padlock’ pessary, was devised by myself, and described in the last edition of this work (1872). Fig. 119 shows at B the stem of ebonite, one and a half inch in length, the lower portion hollow to admit the inserting stylet. At A is shown the supporting vaginal disk, of an oval outline, having a socket into which the stem fits when *in situ*. The stem is intended to fit rather loosely in its socket. The plug or stem which I have employed for this purpose is, usually, one and

FIG. 119.<sup>1</sup>



three-quarter inch long, conical in shape, with a bulbed termination. The diameter varies; the smallest has a diameter of three-sixteenths of an inch at its bulbed termination. The stem ends below by a broad basis half an inch in diameter, and is perforated for a short distance for facility of introduction, the ordinary uterine sound fitting into the perforation, and acting as a handle. The stem is retained in its place—for it has a great tendency to slip out—by the oval support, made, in various sizes, to fit the vaginal canal.

<sup>1</sup> Fig. 119 represents Graily Hewitt's stem pessary (so called ‘padlock’ pessary). B is the stem (actual size); A shows the stem fitted into the supporting vaginal framework (reduced in size). As at present made the framework is more flattened than it here appears. The supporting framework is made in various sizes.

In order to introduce the instrument, the sound, as a handle, is passed through the collar of the vaginal framework, and on it is placed the ebonite plug. After the plug is placed *in situ*, the ring is made to slip up the sound until finally the little plug finds its place in the supporting collar. The sound is then withdrawn and the work is done. Only those who have attempted to introduce rigid plugs into a contorted or contracted canal, and to maintain them there, will appreciate the necessity or usefulness of this contrivance, which I have found to answer extremely well. This instrument is made by Coxeter and Son. I have found that it works well in practice, and it has been very largely employed by Dr. W. Murray of Newcastle-on-Tyne; the vaginal part requiring

FIG. 120.<sup>1</sup>

to be generally one and three-eighths inch by two and three-eighths, but sometimes smaller.

Dr. Routh's instrument is on the same principle. His stem is articulated to a cross bar attached to a Hodge pessary, its position in regard to which can be regulated by a screw.

Dr. Wynn Williams's instrument is another modification of the same principle. In his pessary the vaginal framework is of wire covered with indiarubber, and admits of lateral compression. It has an indiarubber diaphragm perforated with holes; the stem is set near the distal part of the vaginal supporting framework. In a more recent, improved form the stem rests in a cup-shaped

<sup>1</sup> Dr. Wynn Williams's stem pessary. *Obst. Trans.* vol. xiv. p. 308.



depression in the diaphragm. It is very easily applied and is a very ingeniously constructed instrument.

Dr. Meadows's instrument is on a like principle, and also allows a certain degree of motion of the stem on the framework.

Dr. Thomas describes a combination of stem with an ante-version pessary which he has found useful in certain cases.

For the very necessary precautions to be taken in using stem pessaries the reader is referred to page 199.

## CHAPTER XXVII.

ASSOCIATION OF PREGNANCY WITH FLEXIONS OF THE  
UTERUS.

GENERAL OBSERVATIONS.—Frequency of Abortions in such Cases: Reasons for this—Difficulty of Expansion of the Uterus.

RETROFLEXION AND RETROVERSION OF THE GRAVID UTERUS.—1. Flexion present before Pregnancy occurs—Natural History, Symptoms, and Effects. 2. Flexion occurring after Pregnancy has commenced—Diagnosis—Treatment—Reduction by Positional Treatment; by other Means—Treatment of the Bladder.

ANTEFLEXION OF THE GRAVID UTERUS—a Frequent Condition and a Frequent Cause of Abortion.—1. Cases where the Antelexion occurs after Pregnancy has begun—2. Antelexion precedes the Pregnancy—History of these various Cases—Reasons why the Complication is not generally recognised as an important one—Diagnosis—Severe Sickness a Common Symptom—Author's Views on this Subject—Retention of Portions of Ovum another Result of the Flexion—Treatment in various Cases according to severity of the Case—Elevation of the Uterus, how to be effected—Relief of the Sickness—*Modus operandi* of the Treatment—Dr. Copeman's Method—Dilatation of the Cervix for Cure of Sickness discussed and explained.

## SUBSEQUENT TREATMENT.

THE subject of the association of flexions with pregnancy is a very interesting and important one. Retroflexion of the uterus associated with pregnancy has been long known; but concerning the association of antelexion with pregnancy little has been published.

When the uterus is in a flexed condition pregnancy may not occur at all. When pregnancy does occur under such circumstances, the result varies in different cases. It is necessary to point out, and to endeavour to explain, the various results observed in different instances.

Certain general remarks apply to all cases. If the flexion be slight in degree and not of long duration (say not over two years), pregnancy may proceed to the full term. It is generally, however, noted in such cases that the early part of the pregnancy is attended with a troublesome amount of sickness, and there may have been other discomforts observed as soon as pregnancy set in.

When the flexion is more chronic or more severe in degree, it generally happens that an abortion occurs during the second, third, or fourth month.

The pregnancy may begin before the uterus becomes affected with flexion. There are instances in which the uterus, having been in a normal condition to begin with, becomes gravid, and soon after falls into a flexed condition.

In cases where abortion happens during the early months of pregnancy, we cannot tell without a careful inquiry into the previous history and other facts whether the flexion followed the pregnancy or preceded it.

Abortion is a very frequent result of the association of pregnancy with uterine flexion, and such association is really the most common of all the causes of abortion.

The reason why abortion is so liable to occur in cases where the uterus is flexed appears to be, principally, the interference which the distortion of the uterus offers to the proper expansion of the cavity. But the distortion would have very much less influence than it is found to have if the body of the uterus were free to move. Owing to the action of gravity on the one hand, and the hindrance offered to the ascent of the uterine fundus by the sacral promontory (in cases of retroflexion), and by the symphysis pubis (in cases of ante flexion), the uterus is, however, not free to move and expand in the normal manner.

If we suppose the uterine walls to be in a condition of health, the conditions just mentioned above would be the only ones to be considered. Given freedom to expand and space in which to expand, there would be no reason why the uterus, though bent upon itself, should not unbend, expand, and do its proper work in the ordinary manner—the above difficulties being removed.

But in many cases we have further obstructive conditions present. When the flexion is a chronic one, the uterine walls are liable to become changed in thickness, and in other respects. Too thick in some parts, unduly thin in others, corrugated, compressed, sometimes constricted on the peritoneal surface by adhesive bands,—under such circumstances the expansion of the uterus is a matter of difficulty, and an abortion may result at an early period of the pregnancy.

There are good reasons for believing that in some cases the difficulties in the expansion of the uterus, though not immediately resulting in expulsion of the ovum, produce interference with the placental growth in such a way that premature labour and delivery of a dead child occur later on.



The hardening and compression of the uterine tissues resulting from flexion is more particularly liable to be present near the os uteri internum, and there are various curious clinical facts hereafter to be mentioned which are only to be interpreted by supposing a condensation of the uterine tissues to exist at this situation. If the puckering and condensation be considerable, it is evident the uterus may be so held and maintained in its distorted condition that expansion of the organ is difficult. The difficulty in question finds a solution, in many instances, in the occurrence of abortion.

But a further result of the existence of acute flexion is probably actual disease of the decidua vera, and consequent abortion brought about in this way. The growth of the decidua, which is a part of the natural process of pregnancy, cannot proceed normally at certain situations, and, as has been shown by examination of actual specimens, it may become actually disorganised, and thus lead to the occurrence of abortion. Such is probably the explanation of two very interesting observations made by Dr. Slavjansky, and published in 1873, entitled 'On Endometritis Decidualis Chronica as a Cause of Abortion in some cases of Displacement of the Pregnant Uterus.'<sup>1</sup>

All cases of uterine flexion in which pregnancy occurs are not followed by abortion, but it is mechanically almost impossible for pregnancy to continue if the flexion be unrelieved. As a matter of fact, many cases of this kind are so relieved; the uterus becomes straight as it expands by the mere circumstance of the expansion. In others the flexion remains, and as the uterus goes on expanding the result is in many cases to actually increase the flexion.

#### RETROVERSION AND RETROFLEXION OF THE GRAVID UTERUS.

Desgranges (1715), Gregoire (1746) and William Hunter (1754), described cases of 'retroversion' of the gravid uterus. Gooch in his lectures (quoted by Ashwell, *Diseases of Women*, p. 597) gives a full narrative of William Hunter's celebrated case. In this case the patient was four months pregnant, when she began to suffer from retention of urine. This was relieved by catheter but gain occurred. Mr. Wall, who was the medical attendant, recognised the case as one like that published by Gregoire. He tried to reduce the retroverted uterus, but failed, and then sent for

<sup>1</sup> Paper read before the Obstetrical Society of Edinburgh, July 1873.

William Hunter, who recognised the nature of the case also, and attempted reduction unsuccessfully. There was obstinate constipation. The patient died in a few days. A second case, it appears, occurred soon after, and the patient could pass neither urine nor fæces. The catheter could not be introduced; it was proposed to puncture the bladder; the patient refused, and at length felt something burst, which proved to be the bladder, and she expired in a few hours. In both these cases the state of the uterus was substantiated by an autopsy.

In Ashwell's work will be found recorded several of the most interesting cases of retroversion of the gravid uterus which have been observed since William Hunter's case, including some noted by himself. These cases made evident the great importance of the retention of urine and fæces as clinical features of such cases; for death was usually found to occur either from irritation, by inflammation involving the peritoneum, or by rupture of the bladder. Great relief always occurred when the bladder could be emptied, and in some cases, when the disease was detected early, rectification of the uterus followed the careful daily evacuation of the bladder. On the other hand, evacuation of the bladder, when effected, did not always ensure the possibility of reduction of the displacement. Thus in one case (Mr. Wilmer's) the bladder was relieved, but death soon occurred, and the uterus was found so firmly wedged in the pelvis after death that it could not be raised up till the symphysis pubis had been sawn away. In Dr. Ashwell's time he found reason to blame the little importance attached by authorities to replacing the uterus, and he forcibly directs attention to the advisability of reducing the displacement, and at as early a period as possible. He also gives directions for accomplishing it which we have hardly improved upon since his time. Ashwell used and recommended careful pressure upwards, the patient being in the knee-and-elbow position.

The pressure was to be made by the fingers in the vagina or, if that plan did not answer, in the rectum. Denman, followed by Blundell, also employed the knee-and-elbow position, and speaks of it as sufficient, if kept up sufficiently long to procure the reduction of the uterus, provided that the bladder be kept empty. But Ashwell disbelieved the efficacy of this positional treatment alone in severe cases.

As to the difficulty in introducing the catheter sometimes found to occur, Ashwell states that a long flexible male catheter can always be employed without delay or suffering. Should it be in-

possible to use the catheter the supra-pubic puncture of the bladder is required. In a case related by Ashwell eleven pints of ammoniacal urine was obtained by a long catheter, the uterus was reduced, but abortion and death in five days followed.

An interesting paper by the late Dr. Phillips is recorded in vol. xiv. of the 'Obstetrical Transactions,' 'On Retroflexion of the Uterus as a frequent cause of Abortion.' Dr. Gervis also communicated some most instructive cases to the Obstetrical Society, recorded in vol. xvi. of the 'Obstetrical Transactions.' The discussion which followed the reading of these papers may be consulted with advantage.

The dislocation is primary or secondary. Formerly it appears to have been taken for granted that it was always a primary affection. The late Dr. Tyler Smith was one of the first to point out that the flexion frequently precedes the pregnancy. It is now well known that this view is accurate so far as a large majority of cases is concerned. But, on the other hand, the dislocation is also undoubtedly primary in some few instances.

In a previous chapter some account has been given of the frequency with which abortions occur in cases of this disease (see p. 184).

1. *Cases in which flexion precedes the pregnancy.*—The natural history of cases when pregnancy occurs in a case of retroflexion is as follows:—Pain is usually felt more or less from the commencement, or there is at all events a sense of discomfort, bearing down and weight, and inability to move without producing pain. Difficulty in defæcation, due to the pressure of the body of the uterus on the rectum, is commonly observed. Sickness, sometimes to a most distressing extent, is commonly present. In some cases it is the most severe of all the symptoms. (The connection of obstinate sickness with existence of retroflexion of the gravid uterus will be discussed later on.) As the pregnancy advances these symptoms increase in severity, and it is found difficult to pass urine, the bladder is liable to become distended, and there is retention. In not a few cases the fact that the patient passes urine very often disguises the real nature of the case and conceals the existence of retention. By the time the third month has arrived, the uterus, being now of considerable size, exercises great pressure on all the organs and structures near it. At this time, or before this time in a few instances, nature shows herself equal to the emergency, and the uterus rises upwards, the posterior rotation diminishes, and relief



of the symptoms follows. But if the patient be not thus relieved naturally, and if its true nature be not understood, one of two events results—either (1) the uterus throws off the ovum, and abortion occurs; or (2) the uterus continues to expand, though under increasingly unfavourable conditions. The whole pelvis is occupied by the uterus. The cervix is tilted high up above the symphysis pubis, and the bladder becomes so much dilated by the retained urine that it may reach to a point above the umbilicus. All the symptoms increase in intensity. The pressure is exceedingly painful, labour-like forcing pains are experienced, the rectum is impassable, the urine escapes in drops only, the ureters probably undergo dilatation and the pelves of the kidneys also. The sickness may be incessant, the prostration extreme, the pulse quick and small, and irritability alternating with great exhaustion (see chapter on ‘Vomiting of Pregnancy’). When this latter condition of things persists up to the fifth month death may result from the accumulation of evils then present: there is fever, quick pulse, gradual prostration, uræmia probably; in some cases rupture of the bladder may occur and destroy the patient. A third course is sometimes observed: the uterus continuing to expand sends an extension upwards into the abdomen, and does in fact become partly an abdominal organ; but at the same time the part within the pelvis remains there. The uterus thus acquires a curiously abnormal shape; and in the celebrated case related by Dr. Oldham<sup>1</sup> no abortion occurred, but the uterus continued to retain this shape until the full term of pregnancy had been reached.

Rectification of the position, as already remarked, sometimes occurs naturally, and if so, it generally happens before the fourth month has been reached. The larger the uterus the greater the difficulty offered to the elevation of the now greatly distended organ, owing to the projection of the sacral promontory. It seems probable that the great distension of the bladder sometimes present operates at a critical moment in preventing the rectification. The rectification may occur suddenly or more gradually.

The disturbance of the functions of the bladder are among the most serious of the effects produced by retroflexion of the gravid uterus. The distension of the bladder and irritation of the mucous membrane sometimes produce actual exfoliation of the lining, and even when this does not occur the lining may become seriously damaged. The whole lining has in some cases come away in a single piece. When the condition is unrelieved the

<sup>1</sup> *Obst. Trans.* vol. i.

distension, beginning at the bladder, extends up the ureters and affects the pelves of the kidneys, in some cases causing fatal arrest of the kidney functions. As already stated, rupture of the bladder has occurred in some cases.

Certain peculiarities of the subsequent history require notice. Thus, it frequently happens that when abortion occurs the abortion is an incomplete one, the fœtus being expelled but the membranes left behind. The retort shape of the uterus favours retention of the thickened bag of the ovum, and it may be some days or even longer before it is expelled. Septicæmia may follow.

Further on still, the condition of the uterus is liable to be rendered worse than before. The uterus, having discharged its contents, but being considerably enlarged and retaining its flexed condition, the process of involution is arrested and much additional trouble results; so that a retroflexed uterus which has become impregnated and has thrown off the ovum is liable to become even more flexed, and to give rise to more irritation than before. We sometimes meet with cases where there have been a succession of abortions from this cause, the uterus becoming finally so much distorted that pregnancy ceases to be possible.

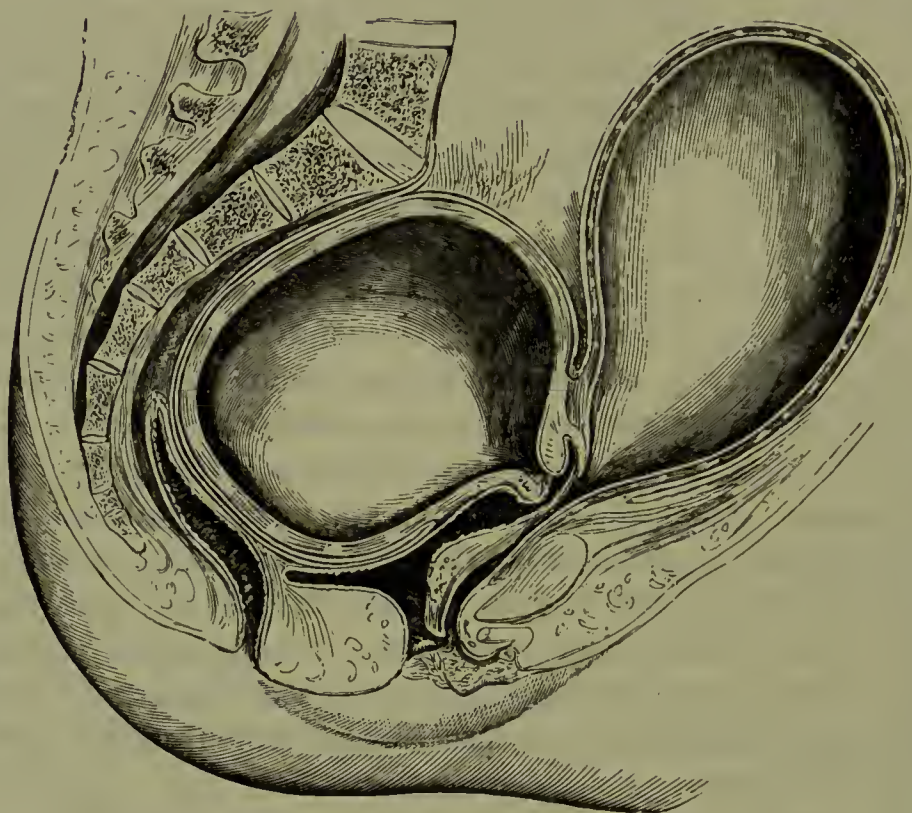
2. *The flexion and displacement occur after pregnancy has commenced.*—An accident, such as a fall, or lifting a heavy weight, or a continuous exertion of any kind, may suddenly produce retroflexion of the gravid uterus. There are several well-recorded cases of this kind, where the uterus was apparently in a sound state previously and was evidently afterwards displaced. And the displacement may occur as late as the fourth month—possibly even a little later.

Once produced, the symptoms and course of the affection is very similar to what is observed in the former class of cases. The chief difference is that the symptoms usually set in with abruptness when the displacement happens after pregnancy has commenced.

The *diagnosis* of the existence of retroflexion of the gravid uterus is most important, for very serious results may follow from its being overlooked. The diagnosis is not difficult if a proper examination be made. The tilting upwards of the os uteri behind the pubes, the difficulty of reaching it, the evident displacement of the bladder upwards, are easily recognisable in most cases. The presence of a large tumour above the pubes when the bladder is distended is rather misleading, for it has been sometimes taken to be the normally placed gravid uterus. A vaginal examination is imperative; and the rounded tumour of the uterus behind the



vagina, reaching down, it might be, close to the vaginal outlet, is easy to appreciate by the touch. The only difficulty is in deciding that the tumour so felt behind the vagina is really the uterus, for it might be due to hæmatocele or to hardened effusion, the result of pelvic cellulitis, or possibly be an ovarian cyst. The use of the catheter would, of course, clear up any doubt as to the nature of the abdominal swelling felt above the pubes. It is to be remarked that the tumour felt behind the vagina may be a little to one

FIG. 121.<sup>1</sup>

side of the middle line, but when the pregnancy is further advanced it is median.

The *treatment* is not difficult when the presence of the malady is recognised at an early date.

Take, for instance, the case of a patient six weeks pregnant, the uterus being retroflexed. Here the treatment consists in gradually pushing up the fundus uteri by pressure from behind, or aiding its ascent by positional treatment alone. If the retroflexion is not of long standing, positional treatment—*i.e.* avoidance of sitting, occasional knee-and-elbow positions—may prove sufficient. Generally, however, it is best to insert a Hodge-shaped

<sup>1</sup> Fig. 121 represents the gravid uterus in a state of retroflexion at about four months of pregnancy.



pessary. A rather thick pessary of the Albert Smith type (see figs. 59 and 60) is best for this purpose. Such an instrument, properly fitted, is most efficacious. The pessary is worn till the middle of pregnancy, and it is then removed. It has happened in my experience many times that patients under treatment for retroflexion have become pregnant while wearing a pessary of this kind. Under such circumstances it has been my practice not to remove the pessary until about the middle of pregnancy.

Taking a case where the pregnancy has advanced to three months, or a little beyond that time, the patient in a condition of much suffering, and the nature of the case only for the first time recognised, the treatment is more difficult. The bladder should be first relieved, and the uterus replaced as soon as the circumstances of the case render it possible. Sometimes it is found practicable to effect the reduction at once. In other cases the uterus has become so fixed by the swollen condition of the tissues adjacent, or so jammed down in the pelvis by the actual size of the uterus, that, without exercising a good deal of force, a rapid reduction is not advisable, or even possible. In cases where the condition of the patient has become a really critical one, and the constitutional and other symptoms of very intense character, it may be advisable to defer operative reduction for twenty-four hours after the use of the catheter. Indeed, there appears to be danger in suddenly removing a very large quantity of urine from the bladder and *simultaneously* attempting the operation of reduction of the uterus, on account of the extreme shock to the system liable to be produced.

It remains to be pointed out how the reduction is to be effected. One method consists in placing the patient in the knee-and-elbow position, opening the vagina by the duckbill speculum, and allowing the air thus to pass into the vagina. Dr. Mundé<sup>1</sup> records a case where this procedure succeeded at once in the case of a patient eleven weeks pregnant. The same author refers to a case where Dr. Solger of Berlin had a like result in a patient four months pregnant. The manœuvre is one first suggested by Dr. Campbell of Georgia, for reduction of retroversion (non-gravid condition). This method would probably not succeed where there is great swelling and compression of the adjacent tissues. Another method consists in placing the patient in the same position (as practised by Denman and Blundell), and then exercising pressure on the uterus from the vagina by means of the fingers; or

<sup>1</sup> *Am. Obst. Trans.* vol. ix. p. 292.

the pressure may be made from the rectum in the same way. A sustained pressure thus made has generally been found to answer extremely well. A round indiarubber air-ball introduced into the rectum and distended with air offers a means of producing continuous pressure in a convenient direction, and it is a method which has also been found successful. Unless the case were one of extreme character, one or other of these methods could be adopted, the pressure being graduated according to circumstances. If too much force be employed there is a risk of inducing abortion. In the very worst cases, the patient being *in extremis*, and the case practically untreated previously, it would be best to evacuate the uterus by drawing down the os uteri with the finger, breaking the membranes, and allowing an abortion to occur.

After reduction of the displacement a pessary should be introduced to prevent possibility of recurrence, the pessary to be removed at mid-term of pregnancy. Various precautions are requisite in the treatment, without which failure may result. The horizontal position must be rigidly maintained in most cases for two or three weeks after the reduction, and it will be a help to direct the knee-and-elbow position to be employed five or six times a day during this time. The bowels must be kept in good order by daily enemata. The sitting position is the worst of all; a little walking is far less objectionable. As regards the pessary to be worn, it is sufficient to refer the reader to the chapter on 'Retroflexion' for information. It is best to employ a pessary rather thicker, though not necessarily larger, than in cases where the uterus is in a non-gravid state.

We have not yet done with the subject. It is found that when pregnancy is over, the uterus has frequently a great tendency to return to the retroflexed state. In one case some time ago under my care, the displacement returned no less than three times after three successive pregnancies. The following was the order of events: retroflexion with gravid uterus, treatment by pessary, removal at mid-term, pregnancy continuing to full term; uterus found returning to retroflexed condition a month after delivery, insertion of the pessary, pregnancy recurring during the wearing of the instrument, removal at mid-term, etc. This is by no means a solitary case, and conveys a lesson as to the necessity for precaution in the subsequent management of such cases.

## ANTEFLEXION AND ANTEVERSION OF THE GRAVID UTERUS.

There can be no doubt that the most common cause of abortions is the presence of anteflexion of the uterus. The result of observations extending over many years has at least convinced me of the truth of this statement. That it is not as yet a matter of general professional belief is due to the fact that as yet the cases of anteflexion of the non-gravid uterus are often passed over and not recognised as such. In the chapter on 'Anteflexion of the Uterus' this subject has been fully discussed.

The following is a very characteristic case related by Boivin and Dugès<sup>1</sup> some years ago:—

*Anteflexion at the beginning of pregnancy.*—A young woman æt. 24, third pregnancy, the last four years previously, one only at full term. Supposed now to be in second or third month. In a few weeks the os descended lower than usual. The cervix uteri lay on internal surface of coccyx. There was a rounded tumour somewhat larger than the natural size of the fundus uteri, and painful when pressed, situated between the anterior parietes of the vagina and the bladder. It was the body of the uterus directed horizontally forward and recurved at a right angle upon the cervix; a deep sinus into which the top of the finger was easily inserted answered anteriorly to the point of the flexion. This was owing to a firm contraction of the tissues; for upon pushing the body of the uterus the cervix was raised with it. The cervix not at all congested, but longer than usual, labia prominent, especially anterior, and its orifice open. In a few weeks pregnancy no longer doubtful; later on cervix found higher up, the body of uterus still inclined on cervix; intervening fold much diminished. No doubt the anteflexion would cease as cervix expanding became shortened.

Equally characteristic is the following, related by Ashwell:—<sup>2</sup>

*Anteflexion in early pregnancy.*—The wife of a medical man, æt. 36, in first month of pregnancy fell from a steep stair, the bowels being at the time exceedingly constipated. No hæmorrhage, but syncope for an hour. For six or seven weeks she was never free from a heavy bearing-down sensation in front, rendering micturition frequent and painful, defæcation not improved. She was irritable and feverish. The husband thought the womb was retroverted. At the end of third month I found the cervix uteri in its natural position, but not so the fundus, which, in the form of a rounded and solid tumour, was lying forward between the anterior wall of the vagina and the bladder. She complained

<sup>1</sup> *Diseases of the Uterus* (translated by Heming, 1834), p. 110.

<sup>2</sup> *Diseases of Women* (1844), p. 596.



of pressure at the part when the body was curved. The cervix was elongated, fuller and harder than natural; the os open. I placed the fingers of my left hand behind the pubis, endeavouring in this way to reach the fundus, while with the forefinger of my right hand I tried to draw the cervix downwards and forwards. I did not succeed, and no further manual efforts were made. Care was taken that she observed the recumbent position for a month. An examination at the sixth month satisfied her husband that the curvature had nearly disappeared, and though not during the pregnancy ever quite free from suffering, she was delivered without difficulty and recovered remarkably well.

There are two classes of cases—(1) Those in which the uterus was in a normal condition when the pregnancy began, and (2) those in which the uterus was anteflexed before the pregnancy commenced.

1. *Anteflexion occurring after pregnancy has begun.*—This is not so common a condition as the following one, but it is by no means rare. A sudden jerk, or blow, or fall, or a long-continued exertion of any kind, may displace anteriorly the gravid uterus. An accident severe enough to produce such a result very frequently has the further result of inducing an abortion; but in some instances the abortion does not happen at the time; the patient feels ill, and as the pregnancy proceeds becomes worse, and very possibly an abortion occurs a month or two later, or, under favourable circumstances, pregnancy ends at the proper time.

2. *The anteflexion precedes the pregnancy.*—When the anteflexed uterus becomes gravid, it frequently happens that the uterus is able to expand, and to rise up out of the pelvis; and so the pregnancy proceeds, at first with more or less difficulty, but later on without difficulty. The obstacle to the elevation of the uterus in process of expansion is less than in the case of the retroflexed uterus. Taking indiscriminately one hundred cases of anteflexion and one hundred cases of retroflexion, it might be predicted that an abortion would certainly occur more often in the latter class of cases than in the former. The promontory of the sacrum hinders reduction of the retroflexed gravid uterus, but the symphysis pubis does not project so as materially to interfere with the elevation of the anteflexed gravid uterus. Thus abortion is not so frequent a result in cases of anteflexion as in cases of retroflexion. Yet in regard to *absolute* frequency of abortions anteflexion stands before retroflexion. Absolute incarceration of the gravid uterus is not for the reasons just mentioned so liable to occur in anteflexion as it is in cases of retroflexion of the gravid

uterus. But nevertheless such incarceration does sometimes occur. When the incarceration occurs it is more generally for a limited period only, the uterus either (1) rising up out of the pelvis, or (2) expelling its contents, and in either case the patient becomes relieved. Fatal incarceration, such as may occur in retroflexion, is very rare. Ulrich, however, records a remarkable instance of it. The case will be given in full in the chapter on the 'Vomiting of Pregnancy.' In this case the condition was recognised during life, but the attempts at alteration of the position of the uterus failed. The uterus lay in this case *obliquely* across the pelvis. This oblique position appears liable to occur as the pregnancy proceeds, seeing that the oblique diameter is longer than the antero-posterior, and there is more room, therefore, in the oblique position.

The history of many cases is as follows: The uterus is anteflexed in the first or second degree, with first degree of anterior rotation. Pregnancy occurs. An unusual degree of sickness is observed from almost the moment that pregnancy begins. There is great frequency of micturition. Walking and sitting aggravate both of the latter symptoms. The patient is more or less uncomfortable in other respects. This condition persists up to the middle of the third month. Then the symptoms undergo a change—either improve or become very much worse. If they improve, that indicates that the bend in the uterus has given way, the organ is expanding more easily, and rising up out of the pelvis. If, on the contrary, there is intensification of the symptoms, this means that incarceration is present. The incarceration is perhaps only temporary; at the end of a few days the expansion does the work required and the uterus rises upwards.

In another set of cases the history is as follows: The uterus has been anteflexed for some time. It is hard, rigid, and firm in texture. Pregnancy occurs. Instantly great pain is felt; sickness is very troublesome, so also frequent micturition. The patient continues to go about; the uterus is not kept at rest; at the end of about two months abortion occurs.

In some cases the patient loses blood from time to time, the indication often of impending abortion, but not of course necessarily so.

The difficulty in cases such as above described arises from three sources—(1) The hardened, contracted condition of the uterine tissues (in chronic cases). (2) The downward pressure of the abdominal viscera. When these two difficulties are conjoined the result is more likely to be unfavourable. Experience shows that

while in many cases—it may be said in most cases—the absolute removal of the latter source of difficulty by keeping the patient absolutely in the horizontal posture is successful in averting an impending miscarriage, there are others in which this precaution alone is insufficient. (3) A further source of difficulty in some cases is the œdematous effusion surrounding the uterus.

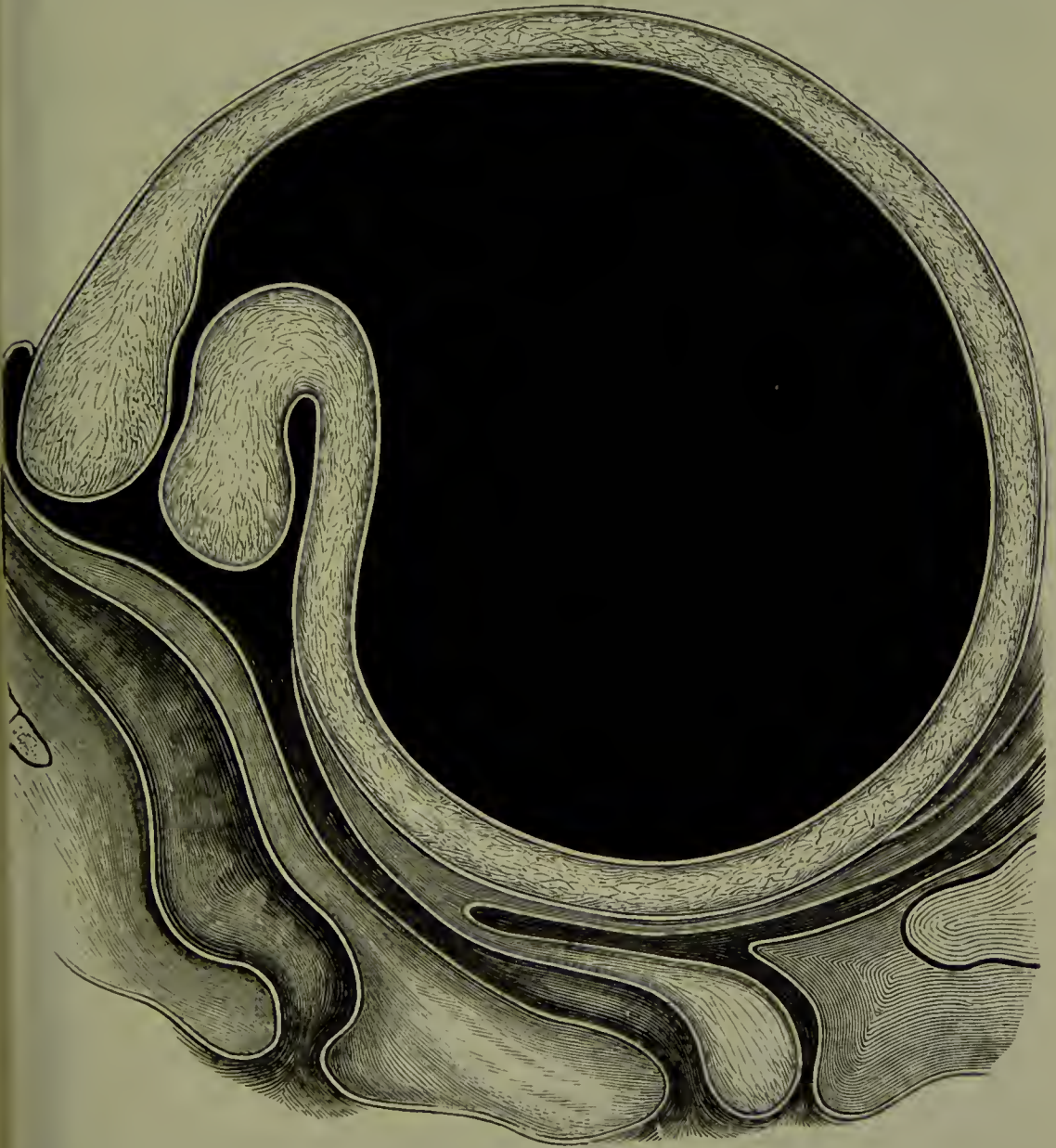
In reference to the general question of the frequency of ante-flexion or -version of the gravid uterus, I may say that I first became aware of its importance in attending a case which came under my notice eighteen years ago, in which a lady who had been treated by me previously for anterior displacement became pregnant, and soon after the beginning of the third month presented all the symptoms above described. The uterus was incarcerated in the pelvis, there was considerable œdematous swelling of parts surrounding the vulva, and the uterus was jammed downwards behind the symphysis pubis. The horizontal position, kept up for a week or ten days, relieved the symptoms, and pregnancy proceeded to about eight months when the patient was delivered of a dead child. This case was the first of the kind I had observed, but since that time I have had many opportunities of repeating the observation, and have carefully investigated, whenever possible, the behaviour of the uterus in cases of ante-flexion where the patient has become pregnant. Having thus carefully followed the progress of cases of ante-flexion or -version, having cured many such cases, and having had opportunities, many in number, of observing the progress of cases during pregnancy and subsequently, I have become impressed with the conviction as to the extreme importance of ante-flexion as a cause of abortion, and have obtained valuable information as to the means of preventing the occurrence.

#### DIAGNOSIS.

This presents little difficulty. The patient is usually known to be pregnant. The pain and distress, together with the sickness, announce that pregnancy is not proceeding normally. Unless an examination be made, it is difficult to say whether retroflexion or ante-flexion be present. The position of the os uteri, which is very far back, and the presence of a dense resisting tumour (the ante-flexed body of the uterus) felt through the vaginal roof, indicate the nature of the case. The uterine tumour is rounded, elastic, generally symmetrical, and usually in the middle line; but as the uterus increases in size it comes to occupy an oblique



position in one of the oblique diameters in the pelvis. This oblique position was present in Ulrich's fatal case, and I have observed it in two cases. A case of extra-uterine pregnancy might present somewhat similar symptoms, but the tumour enclosing the foetus would be probably unilateral. It must be recollected that in ordinary normal pregnancy the uterine body

FIG. 122.<sup>1</sup>

would be, say at the end of two months, rather readily felt by the exploring finger through the vaginal roof, but it should not of course be jammed downwards behind and close to the symphysis pubis. There is a perceptible interval between the uterus and the pubic

<sup>1</sup> Fig. 122 represents anteversion of the gravid uterus at about the fourth month of pregnancy.

bones when the gravid uterus is in a normal state at the end of two months.

In the chapter on 'Anteflexion and Anteversion' statistics are given as to the frequency of abortions due to this condition of the uterus. The repetition of abortions is a notable feature—thus four or five times in succession the abortion may occur. The success in arresting further repetition of the occurrence by treating the anteflexion is one of the many arguments adducible in favour of the above views.

A most interesting feature in cases of anteflexion with pregnancy is the very great frequency of obstinate sickness under these circumstances. It may be predicted, almost with certainty, that if a patient affected with anteflexion becomes pregnant she will

FIG. 123.<sup>1</sup>



suffer severely from sickness during the early part of the pregnancy. We now and then meet with cases when the patient is suffering from what is termed uncontrollable vomiting in pregnancy. These are generally cases of the kind here alluded to—viz., cases of severe anteflexion associated with pregnancy. Not always of anteflexion, because in some cases there is retroflexion; but practically it may be said that anteflexion is chiefly responsible for these cases of severe vomiting.

The special significance of sickness in relation to pregnancy will be found fully discussed in the following chapter.

<sup>1</sup> Fig. 123 represents the condition of the uterus when distended by a retained ovum or clots in a case of anteflexion.



It may be mentioned that another result connected with abortion is the *retention of the ovum in the uterus* after its death. For instance, a patient has a miscarriage due to ante flexion: the ovum dies and the patient loses perhaps a great quantity of blood. In a certain number of these cases the ovum will remain in the uterus a considerable number of days, and the reason it does not come away is that the shape of the canal prevents it. Unless properly assisted, there occurs a considerable delay in its escape from the uterus. The difficulty results from the acutely flexed state of the organ, and the knowledge of this fact is the secret of success in the treatment of such cases of retention of the ovum. The cavity of the uterus may become considerably distended by blood or clots, as shown in the annexed figure (fig. 123). In these cases of miscarriage, if the ovum is retained, a further frequent result is that it becomes putrid, and gives rise to an offensive discharge which may continue for some time. When, however, the uterus is artificially straightened, the ovum is generally easily evacuated, and the offensive discharge ceases. Such retention of part of the ovum may occur equally in ante flexion and retro flexion of the gravid uterus. With reference to the importance of the relation subsisting between retention of the ovum in early miscarriages, and flexions, I do not hesitate to say that, since my attention has been directed to the mechanism of these occurrences, I have not seen a case in which the relation described has not been most obvious. The difficulty in relieving the patient and putting an end to her various discomforts has ceased on taking measures to straighten the canal, and thus allowing the uterus to exert advantageously the proper expulsive action on its contents.

#### TREATMENT.

In simple cases, where the symptoms are not severe and the patient has not had an abortion, the following treatment will probably prove sufficient: The patient should be instructed to avoid all severe exertion until after the end of the fourth month; she should avoid the sitting position whenever practicable; carriage exercise only in the recumbent position; short walks to be preferred; as a rule, the patient to use a chair with a very sloping back, or the sofa; nothing tight to be worn over the abdomen; and the bowels to be carefully regulated, so as to avoid any straining effort.



In more severe cases the patient must at once take to her bed in order to have the advantage of perfect rest in the horizontal position. If relief of the symptoms does not follow very speedily—*i.e.* within a day or two—it may be necessary to assist the elevation of the body of the uterus. This may be done best by inserting a small air-ball pessary about one and three-quarter inches in diameter into the vagina, and inflating it to two inches with air. This may be left *in situ* for twenty-four hours, and then removed and re-applied if necessary. To aid in the elevation of the uterus a pillow may be placed under the pelvis for an hour at a time, the head being only slightly raised. I have frequently employed a eradle pessary in severe cases of ante flexion of the gravid uterus, removing it when pregnancy has reached the end of the fourth month. In several cases, this instrument having been used to remedy the ante flexion, the patient has continued to wear it uninterruptedly up to the end of the fourth month; but I do not recommend that, in such cases, the eradle pessary should be employed in a haphazard way, or by anyone not accustomed to its use.

I regard the positional treatment above described as quite essential in such cases. A very remarkable proof of the adequacy of the explanation of the occurrence of severe sickness in pregnancy is afforded by the success of this positional treatment in relieving the patient; for I have records of many cases where the sickness has been relieved almost at once by mere positional treatment alone.

The very severe class of cases remain to be considered—those, namely, in which the condition of the patient is critical owing to long-continued and irrepressible vomiting. These cases present themselves almost (but not quite) without exception at just before the mid-period of pregnancy. It is in this class of cases that it has been thought right in some cases to advise the induction of abortion in order to save the patient's life. The late Dr. Copeman of Norwich, in the year 1875, made an observation in a case that came under his notice which induced him to draw the conclusion that by dilating the cervical canal of the uterus the sickness is arrested. He had dilated the cervix as preparatory to the evacuation of the uterus; but the day after the dilatation, as the sickness had disappeared, it was not necessary to complete the process, and the patient had no more sickness. He repeated the operation in other instances with a like result—finding thus, as he believed, an important and valuable means of arresting the vomiting in these

dangerous cases. A more particular account of these cases and of the deductions to be drawn from them will be found in the succeeding chapter.

A perusal of the particulars of his cases (see following chapter) will, I believe, sustain the belief that they were cases of ante-flexion of the uterus, coupled in some instances with very marked rigidity of the cervix, and great resistance and firmness of the structures around the internal os uteri; in other words, that the uterus was either markedly anteflexed, or that there was hypertrophy and contraction, the result of pre-existing flexion of the uterus.

The success of the procedure, which Dr. Copeman himself did not attempt to explain, is to be accounted for as follows: (1) These are cases, usually, of anteflexion, the os is far back, the body of the uterus low down behind the symphysis. Now it is impossible to introduce the finger—indeed, any dilating agent—into the cervical canal without drawing forward the os uteri; equally impossible to draw the os uteri forward without at the same time dislodging the uterus from its abnormal position; in other words, the procedure of dilatation of the cervix had as one of its results the rectification of the position of the uterus. (2) The actual dilatation of the cervix uteri. This dilatation, in cases where the cervix is contracted and hardened by previous disease, releases the tension of the parts, and, in fact, it does artificially what the uterus has been vainly trying to do before for itself. Experience has shown (see cases related in the next chapter) that this condition of things is liable to be met with in certain cases, and they will probably be almost invariably found to be cases where there has been marked flexion of the uterus previously, and generally cases in which there have been previous pregnancies.

Two kinds of difficulty may be met with in cases of ante-flexion of the gravid uterus: (1) The position of the uterus cannot be rectified, or (2) the cervix is very hard and condensed, and hypertrophied. The two difficulties may be met with in conjunction or separate. Ulrich's case, related in the following chapter, is an instance of the first kind of difficulty; of the latter, a case related by Mr. Fry is an instance. When the condition of the patient is a critical one, it may be assumed that one or both of the difficulties described exists, and requires mechanical assistance.

1. As regards the liberation of the uterus. Carefully applied pressure it is to be presumed will hardly ever fail in elevating the

uterus, and in the cases where it has been found impossible to accomplish this, the method of pressure by use of an elastic, air, or water pessary in the vagina was not tried. It is to be expected that, in some cases, one or two days, or more, might be required to effect the reduction, the pressure being gradually increased from time to time.

2. Concurrently with the rectification of position of the uterus, or separately, or subsequently, as circumstances might indicate, the dilatation of the cervix may require to be performed. The best means of accomplishing it will be described in the next chapter, on the 'Treatment of the Vomiting of Pregnancy.'

I have in my own practice only had occasion to use dilatation of the cervix once in a case where rectification pure and simple failed in relieving the sickness. In this case the uterus was exceedingly hard and almost cartilaginous, and the sickness persisted in spite of rectification of the ante flexion. In this case I adopted the dilatation method of Dr. Copeman and found the tissues around the internal os very unyielding, and the dilatation was effected with the greatest difficulty. The sickness became relieved, but abortion followed in this instance.

#### SUBSEQUENT TREATMENT.

It is very necessary to be aware of the fact that, when abortion has occurred in consequence of ante flexion of the uterus, the malady is very likely to become much exaggerated afterwards unless care be taken to prevent it. The patient must be kept in the horizontal position for some days after the abortion and means taken to promote the involution of the uterus in a proper manner. If no care be taken, the uterus is very apt to settle down, as it hardens and contracts, into a condition of flexion even worse than existed before; and a repetition of abortions produces chronic hypertrophy and exaggeration of flexion, and the other usual effects of these complications. A few days after the abortion is over, and before the uterus has firmly contracted, is an excellent opportunity for moulding the organ into a better shape, and at that time a pessary may often be employed with great advantage.



## CHAPTER XXVIII.

## THE VOMITING OF PREGNANCY.

AUTHOR'S Explanation, and Paper on Subject in 1871.

SEVERE OR DANGEROUS VOMITING IN PREGNANCY.—Historical and Critical Inquiry into the Subject, with Summary of Observations recorded by Others—Account of Cases published—Dr. Copeman's Cases: Explanation of these—Cases observed by the Author—Aubert's Observations on Influence of Movements of Uterus in producing Sickness—General *Résumé* of the Subject.

TREATMENT OF THE VOMITING OF PREGNANCY.

THE subject discussed in the present chapter is one which more usually finds a place in works on the subject of midwifery, but the close connection which appears to subsist between the presence of distortion of the uterus and the occurrence of severe vomiting in pregnancy renders it desirable to discuss the question as a sequel to the preceding chapter, wherein the association of flexions of the uterus with pregnancy has been considered.

In a paper presented to the Obstetrical Society of London, 1871,<sup>1</sup> I ventured to offer an explanation of the cause of the vomiting of pregnancy. The following is a summary of the paper in question.

Nausea and vomiting are associated with pregnancy. Nausea and vomiting are associated with disease of the uterus. Both these propositions are true. But nausea and vomiting are not *always* present in cases of pregnancy, nor are these symptoms always present in cases of uterine disease.

Looking at the question from a broad point of view, it is quite evident that the condition (whatever that may be) which gives rise to nausea and vomiting in cases of uterine disease is *possibly* the cause of the symptom in the more ordinary case of pregnancy.

Unquestionably, the occasional obstinacy of the symptom, its occasional severity, &c., these are phenomena equally observed in the two cases of pregnancy and of uterine disease; and it is, in

<sup>1</sup> *Obst. Trans.* vol. xiii.: 'The Vomiting of Pregnancy: its Causes and Treatment.'

fact, impossible to consider the two cases apart. It is certainly reasonable to infer that the cause in the two is somewhat similar. An attentive comparison of the phenomena witnessed in the two cases, and a close scrutiny of clinical facts, mutually throw a light the one on the other.

Having so frequently observed severe sickness in cases of flexion of the uterus where no pregnancy was present, following the history of such cases and observing the occurrence of very marked sickness during pregnancy in those cases, I was led to the conclusion that the flexion of the uterus is the condition which gives rise to the severe pregnancy sickness. Carefully testing the accuracy of this conclusion by observation of cases I was induced to frame the theory that the sickness of pregnancy is due to the combined effects of the increasing distension of the uterus and an associated flexion of the organ. Facts led me to the conclusion that in cases of flexion it is the compression undergone by the uterine tissues (markedly by the nervous fibres) at the seat of the flexion which is the cause of the nausea and sickness, both in the gravid and in the non-gravid state.

In the non-gravid state the vomiting and nausea seem to be kept up by the compression of the uterine (nervous) tissues at the seat of the bend, that compression being a necessity of the continuance of the flexion, while in some cases it may be kept up by the pressure of hardened exudation material around the nervous filaments at the seat of the flexion.

The phenomena observed adapt themselves to the explanation that the nausea and vomiting in ordinary cases is due to a temporary and slight flexion of the uterus. It is the fact, that the patient generally experiences the symptom in question on first rising in bed in the morning, or while dressing. Why is this? Is it not because the body of the uterus falls a little downwards in obedience to the law of gravity, thereby producing a slight flexion and a compression of uterine tissues at the seat of the flexion? During the first three and a half months the temporary flexion is possible, because the uterus is still in the pelvis. Generally, after that time it rises out of the pelvis, and flexion to more than a very slight extent is no longer possible. Is it not the fact that, for the most part, the liability to nausea and vomiting ceases at precisely this period? It is also a fact, which will be confirmed by all who make the experiment, that, in ordinary slight cases of nausea and vomiting, by ordering the patient to remain absolutely in the horizontal posture the disturbance ceases.

Since the publication of my original paper in 1871 the subject has much occupied my attention, and many new facts have been recorded by various observers. I propose now to consider the subject as it stands at the present time, giving an account of the principal recorded facts bearing on the subject.

The principal interest attaches to those cases in which the vomiting seriously endangers life; and it is therefore desirable that the facts relating to such cases should be carefully considered.

#### SEVERE OR DANGEROUS VOMITING IN PREGNANCY.

A tendency to nausea and vomiting has been from time immemorial associated with the existence of pregnancy—so much so, indeed, that the presence of nausea and sickness has come to be regarded as a sign of the existence of pregnancy. In a mild form nausea and vomiting are rather common in the early months of pregnancy; but as many cases occur in which the symptom is absolutely wanting, it cannot be regarded as an essential to pregnancy. As a rule, the degree of nausea or vomiting observed is not severe, only producing inconvenience; but in a few cases it is exceedingly severe, and becomes dangerous to the patient—(1) because of the exhausting effect of the repeated efforts of vomiting, and (2) because of the starvation it produces. The dangerous cases are those in which the vomiting is repeated and uncontrollable, and in which this persisted vomiting continues for a period of some weeks or months together.

While, therefore, as a rule the sickness of pregnancy is not a matter calling for serious attention, the exceptional cases just alluded to, where the malady is so serious as to imperil life, have been the subject of much attention: for in not a few instances death has actually occurred as the result of severe uncontrollable vomiting in pregnancy.

Respecting the very severe cases of vomiting in pregnancy, it is necessary to state, in the first instance, that in the large majority of cases the records of autopsies have thrown but little light on the cause of the excessive vomiting which destroyed the patient. In some rare instances lesions of other organs have been encountered, presumably in some measure explaining the sickness; in some cases the uterus was in an abnormal condition; but in the large majority of instances no lesion of any kind was found to exist.

A good account of the published literature of the subject was



given by Anquetin in the year 1865.<sup>1</sup> More recently<sup>2</sup> Dr. McClintock has written an essay summarising the principal known facts relating to the subject.

1. It has been shown that in some of the few fatal cases in which autopsies have been made the fatal sickness was *probably due to lesion of some other organ than the uterus*.

Under this head may be mentioned—A case recorded by Valleix where chronic gastritis was found to be present (Query—Was the gastritis the result of the vomiting?); a case by Taurin, of redness and softening of the stomach; cases by Dubois, Chomel, and Sandras, of similar character; a case by Depaul, where cancer of the pylorus was found *post mortem*; a case by Pipelet, of epigastric hernia; a case by Lanceraux, where Cæsarean section was performed, and after death atrophy of the muscular system and of cellulo-adipose tissues was found to exist; a case by Trousseau, where scirrhus induration near pylorus was found after death; a case by Schutbach, where a tumour the size of an egg, near the pylorus, was found in a state of ulceration after death (these cases are quoted by Anquetin). In addition to the foregoing, Anquetin mentions cases of tubercle of lungs (Schilachigla), tubercle of brain (Rayer and Depaul), alterations of mesenteric glands (Sandras), of glands of epigastrium (Blot), fatty degeneration of liver (Chomel), biliary calculi (Taurin), redness of semilunar ganglia of solar plexus (Lobstein), congestion of meninges (Sandras). Burns<sup>3</sup> gives a case where a biliary calculus was found to be impacted. Robert Lee<sup>4</sup> gives a case where bronchitis and fever had occurred before the vomiting set in.

2. Next we come to cases where *the uterus was found on post-mortem examination to present something abnormal*.

Dance<sup>5</sup> observed two fatal cases—I. In the first, death occurred in six weeks; there was found to be pus between the uterus and placenta, and pseudo-membranous concretions between the uterus and decidua; II. in the second, death in twelve weeks: the uterus was found beginning to rise out of the pelvis; its walls were scarcely one and a half line thick, unusually soft, deeply engorged, and of a violet red colour. III. In a case by Chomel pus was found on the external surface of the decidua.

3. The next category of cases are those in which *some abnormal condition of the uterus was discovered during life*. I have collected a considerable number of cases, particulars of which are subjoined, the facts of which have a bearing on the present dis-

<sup>1</sup> *Rev. Méd.* (1865), pp. 205, *et seq.*

<sup>2</sup> *Dubl. Med. Journ.*, May 1873.

<sup>3</sup> *Midwifery*, p. 265.

<sup>4</sup> *Clin. Med.* p. 107.

<sup>5</sup> *Répert. Gén. d'Anat. et de Physiolog.*

cussion; but there are probably others on record which have escaped my notice. One of the most important cases is the following:—

I. *Case of vomiting in pregnancy caused by retroversion of the uterus.*—Brian records<sup>1</sup> a most interesting case, for reference to which I was originally indebted to Dr. Barnes, and of which the following is a slightly abbreviated account: X., æt. 25. First pregnancy, six years ago, ended normally; second ended favourably, three years ago, but there were some sickness and slight pains. Soon after recovering, sustained accident, being thrown out of a carriage, and very much frightened. Leucorrhœa then noticed and continued; has had also digestive troubles. Third pregnancy commenced in March 1856. Vomiting began following month, and increased in severity. In May she kept to her bed. Intolerable gastralgia, constipation, insatiable thirst, no kind of nourishment retainable, next observed; also painful clonic spasms of limbs, profound exhaustion and depression, and sleeplessness. On May 2 first seen by Brian, who was implored to procure abortion. Nothing was then done, but Professor Moreau saw the patient, and thought the vomiting would cease as the womb rose out of the pelvis. Case now fell under other treatment. On June 9, Brian again in charge of the case, the patient's condition much aggravated; he insisted on a careful examination. No abdominal tumour to be felt, as it should easily have been in the patient's emaciated state. On June 4 Professor Moreau again saw her, and by vaginal examination discovered existence of incomplete retroversion, fundus deeply lodged in the cavity of the pelvis. 'He ascertained that the uterus was imprisoned in the curvature of the sacrum and confined on all sides by the osseous *cul-de-sac*, without being able to rise up above the sacral promontory. As soon as he was aware of these circumstances, by a skilful manœuvre he disengaged the fundus uteri from its abnormal position, causing it to ascend, and thus bringing it into the longitudinal axis of the abdomen.' After this operation the patient felt immediately relieved, the vomiting ceased, and complete recovery took place.

II. Stolz records a case in which the uterus was retroverted, and the excessive vomiting was at once suspended on replacing the uterus. Eventually abortion was induced.

III. In a case by Depaul, at seventh month, it was found that the internal os uteri was completely obliterated. Incisions were performed, and the child born alive.

IV. Clay<sup>2</sup> records a case of sixth pregnancy, æt. 40, at seventh month. He determined to induce labour. Introducing the finger, he found the uterine cervix so sensitive that the slightest touch produced vomiting. Finding this to be the case, he resolved to try the effects of rest. Patient

<sup>1</sup> *Gaz. Hebdomad.*, July 18, 1856.

<sup>2</sup> *Ibid.* 1857.

was kept in bed, and in twenty-four hours could take food. Persistence in the rest treatment produced a perfect cure.

The following is a very important and interesting case recorded by Ulrich,<sup>1</sup> for reference to which I was originally indebted to Dr. Barnes, and which, owing to its being the first recorded case of the kind, is here given in full:—

V. *Anteflexion of the gravid uterus; severe sickness; death.*—Frau Freudenburg, thirty-four years of age, had been healthy, and menstruated regularly up to the date of her marriage on April 1. Since that date coitus had caused her on each occasion a painful feeling in the abdomen, which soon became so great that she at last resisted all attempts at intercourse on the part of her husband. On April 30 the menses appeared as usual; during May she continued in her usual health. At the end of May the menses did not appear. On June 1, without being in any other way unwell, she was attacked with frequent vomiting. At first a part only of the food she took was returned, but very soon the evil increased to such an extent that all food taken into the stomach was vomited, solids as well as fluids, and when the stomach was empty a nauseous sensation remained for a long time. At this period she was also attacked with pains in the epigastrium, which came on in acute paroxysms. By medical advice leeches and blisters were applied to the epigastrium, and all sorts of narcotics and antispasmodics were given internally, without avail. The patient continued vomiting from day to day, and the pains robbed her of her nights' rest, and reduced her to a weak, nervous condition. She resolved, on July 8, to seek relief in St. Hedwig's Hospital. Her condition on admission was the following: Bodily frame weak, muscles relaxed and flabby, atrophy of the subcutaneous fat, on the front of the body several scattered pigmentary spots, pulse small and frequent always, no tenderness of subjacent organs by light pressure on the abdomen; on vaginal examination so high that the posterior lip could with difficulty be reached, the os, rounded and with smooth surface, could be felt in the left posterior portion of the pelvis. The enlarged and doubled-up body of the uterus could be felt lying behind the right horizontal ramus of the pubes. By the aid of gentle pressure with the other hand through the abdominal wall, the uterus was found to be markedly anteflexed. The position of the flexion could be distinctly felt through the roof of the vagina. The breasts were enlarged, and the areolæ darkened. Menstruation had ceased since the end of April. During the first day of her stay in hospital the patient sat up in bed in a bent-over position; she was tormented with continuous nausea and vomiting, all food was returned as soon as swallowed, and large quantities of tenacious mucus were brought up from the empty stomach; rest and ease were impossible,

<sup>1</sup> *Monatsschrift für Geburtsh.* 1858.



owing to the complete loss of sleep, fearful thirst, and obstinate constipation. The diagnosis was asthenia from the vomiting of pregnancy, but the false position of the uterus must be regarded as the essential cause of the evils, and its further expansion would render matters worse, and produce greater irritation of the uterine nerves; therefore an attempt must be made manually to replace the dislocated uterus. Many attempts were made, but they all proved unsuccessful; as the strength of the patient became more exhausted, so was the indication greater for the artificial production of abortion. However, I did not resolve on this until I had made a last trial with the various well-known internal remedies, of which *tr. iodi* is most recommended. With the consent of her husband, accordingly, as a last resource, three to four drops of *tr. iodi* were administered daily. After forty hours of this treatment, the repugnance of the patient to this treatment became so great, that only by repeated persuasions could she be induced to continue it. As all was useless, on July 24, with the consent of her husband, an attempt was made to introduce the uterine sound, but failed, and again after two days; this was partly owing to the restless movements of the patient, and partly owing to the high position of the cervix uteri; the sound was only just able to be introduced into the cervix uteri.

I made a third attempt on July 31, in consultation with Dr. Brandt, and managed at last to introduce the sound as far as the bend; to have pressed it on further would have been impossible, owing to the danger of wounding the patient. Unfortunately, at this time the strength of the patient was so far exhausted, that even in the case of the complete emptying of the uterus an unfavourable termination was probably to be expected. Up to August 2 little change occurred in the health of the patient; then the vomiting ceased suddenly, whilst at the same time the intellect became disturbed, light delirium alternating with deep drowsiness, the pupils were fixed and dilated, and convergent strabismus set in, occasioned by the paralysis of the external rectus. On August 4 she died.

No further vaginal examination had been made after the last introduction of the sound. In laying out the body for post-mortem examination twenty-four hours after death, the fœtus fell out of the vagina; the placenta lay within the os and was brought out by light traction on the umbilical cord. The post-mortem revealed the following: On the surface of the hemispheres underneath the arachnoid were a small number of jelly-like serous exudations, free from blood-staining, the substance of the brain was extraordinarily anæmic; at the base of the brain, around the origin of the sixth nerve, there was no evidence of anything abnormal. The chest organs were healthy, the lungs notably dry, the heart small and firmly contracted. In the intestinal canal, liver, and spleen, no pathological changes were found. The body and fundus of the uterus, considerably enlarged, lay directly behind the right horizontal ramus of the pubes, much anteflexed; the length of the body

of the uterus was five and a quarter inches, the position of the flexion was three inches from the os. On the under surface the walls of the uterus were soft and flabby; on the upper surface they were much condensed and very firm. On opening the cavity of the uterus the placenta was seen to have had its attachment to the lowest segment of the uterus, and thus had harboured the foetus above. Above the seat of flexion in the upper segment of the uterus no free cavity existed; the small interval between the rigid walls of the uterus was filled with a mass like a placenta firmly adherent everywhere. The foetus was five inches long, the umbilical cord six and a half inches.

It appears evident that pregnancy had existed for nearly four months, and that after conception the menses appeared on one occasion; and it is my decided opinion that the bending of the uterus, and consequent hindrance to the regular expansion and growth of the uterus, was the influence producing the obstinate vomiting.

VI. Dr. Tyler Smith<sup>1</sup> recorded a case in which sickness set in early in the pregnancy. When the patient was two months pregnant there was incessant vomiting and extreme emaciation. She was kept alive by teaspoonful doses of beef-tea every half-hour, and injections of beef-tea. When four months pregnant, the uterus could be felt above the pelvic brim. Abortion set in spontaneously at five months. The patient did well for three weeks, and then rapid phthisis set in.

Dr. Tyler Smith believed that 'an almost poisonous influence seems to be exerted by the gravid uterus in some constitutions.' Also that sickness is 'probably cured by the distension and evolution of the dense structure of the uterus after impregnation, or by the pelvic irritation caused by the gravid uterus before it emerges from the brim, or from both these causes.'<sup>2</sup>

*Ulcerations of the os uteri* have been considered to be the cause of the excessive vomiting by several authorities, including Dr. Henry Bennet; and scattered through medical literature will be found cases in which relief from sickness has been to a certain extent obtained by topical applications to the os uteri.

*Severe sickness associated with ante flexion.*—The following case, observed in consultation with Dr. Royston, was quoted in my original paper:<sup>3</sup>—

VII. The lady, æt. 24, quite recently married, had menstruated last October 14, 1870, a very slight discharge being observed on November 3. Since November 3 there had been occasional sickness, and from the end of January up to February 21, when I first saw her with Dr. Royston, the sickness had been severe. Dr. Royston informed

<sup>1</sup> *Obst. Trans.* vol. i.    <sup>2</sup> *Manual of Obstetrics*, p. 99.    <sup>3</sup> *Obst. Trans.* vol. xiii.

me that the lady was pregnant, that when first called in to see her, about a fortnight prior to my seeing her, the sickness was most severe and trying, and no article of food could be retained. On hearing Dr. Royston's account of the symptoms I expressed my opinion that the uterus was acutely anteflexed, that the fundus of the uterus would be found to be low down, jammed in the pelvis, and that this was the explanation of the symptoms. On proceeding to make an examination my opinion was found to be exactly verified: the os uteri lay far back, the roof of the vagina was projected downwards and backwards by the enlarged and anteverted and -flexed uterus, and the body of the uterus was scarcely to be felt at all through the abdominal wall, although the pregnancy was probably of about four months' duration.

The patient had, in my opinion, suffered from anteflexion before marriage, and, pregnancy having occurred, the uterus had gone on growing and expanding without losing its vicious shape, and, indeed, with an increasing aggravation of that vicious shape, up to the time of my seeing her.

The evidence that anteflexion existed prior to marriage was as follows: The patient was never able to dance without discomfort. She had, six years prior to marriage, taken for six months violent horse exercise, to which she was previously unaccustomed, and this was followed by losses similar to those of the menstrual periods, and by diarrhoea. On another occasion, a year later, horse exercise again taken brought on similar symptoms.

In this case the advice given was that the patient should remain altogether in the horizontal position in order to allow the expanding uterus a better chance of escaping from the pelvis, and that the bowels should be kept regularly open. The result of this treatment was that the chief symptom—the sickness—underwent at once a most material alleviation, soon disappeared, and delivery at full term occurred.

VIII. Dr. Æneas Munro<sup>1</sup> in 1872, shortly after the appearance of my paper, published a case which, to use his own words, 'in a very remarkable manner bears out to a certain extent what Dr. Hewitt has said on the matter.' The case was that of a primipara, æt. 21. When seen first, in the third month of pregnancy, the vomiting had become intense. The uterus was found acutely anteflexed and quite fixed. An attempt to push the uterus up failed. The sound passed in about five and a half inches. Some days later, no relief being obtained, and symptoms being very urgent, premature labour was induced. Recovery complete. Dr. Munro in one place states that there was no jamming of the uterus in the pelvis; but in another he says that he found it so fixed in its abnormal position that it could not be moved upwards.

Dr. McClintock,<sup>2</sup> in an essay on the subject published after the appearance of my paper in the 'Obstetrical Transactions,' gives

<sup>1</sup> *Glasg. Med. Journ.*, Aug. 1872.

<sup>2</sup> *Dub. Med. Journ.* 1873.



a collection of cases of severe vomiting in which premature labour was induced to relieve the patient. He confesses that 'we are yet very much in the dark' as regards the etiology of the sickness. Dr. McClintock declined in his paper to accept the explanation which I had offered as to the influence of flexion of the uterus.

IX. Dr. McClintock<sup>1</sup> gives a case, that of a primipara æt. 24, who at the end of two months was found suffering severely from sickness. 'The uterine tumour could not be distinguished above the pubes; but per vaginam the body of the organ was felt enlarged and slightly anteverted, as is often found to be the case at this period of utero-gestation.' Ten days later the patient was in a highly dangerous state, and abortion was induced.

Dr. McClintock accepts the dictum of Dr. Barnes that the normal position of the uterus in early pregnancy is anteversion, and evidently considers that in the above case there was nothing abnormal in the condition of the uterus. It is probable, however, from the facts related that the body of the uterus was really abnormally low in the pelvis.

One of the arguments used by Dr. McClintock and some others, which seem to them to tell against the influence of flexion and displacement of the uterus in producing the sickness of pregnancy, is that in cases of retroflexion of the gravid uterus sickness is not always present. True; but the same holds good respecting retroflexion of the non-gravid uterus. Sickness is not a constant symptom in cases of the latter kind, but I have known most severe and distressing sickness to be produced by retroflexion in the non-gravid state which has been almost magically relieved by elevating the fundus, thus showing in the most indisputable manner that the sickness was due to the flexion. So again with ante flexion: neither in the gravid nor in the non-gravid state is sickness an invariable symptom, but this does not prove that the ante flexion is not responsible for the sickness when it does occur.

A very important contribution to the pathology of the subject is that of the late Dr. Copeman, of Norwich. In 1875 Dr. Copeman published<sup>2</sup> a paper in which he related three cases, of which the following particulars are given in brief:—

<sup>1</sup> *Dub. Med. Journ.*, May 1873.

<sup>2</sup> *Brit. Med. Journ.*, May 15, 1875. Dr. Fly Smith (*Brit. Med. Journ.*, Aug. 21, 1875) says that Dubois first noticed this effect of dilating os in arresting vomiting.

X. A patient, six months pregnant, so reduced by sickness that fears were entertained for her safety. It was resolved to induce premature labour. The cervix was dilated with the finger as a preparatory step. An hour later, when further measures were about to be taken, the patient was so much better that it was thought best to wait. From that time improvement set in, there was no return of sickness, and delivery at full term occurred.

Dr. Copeman was struck by this case, and 'wondered whether the relief could have been effected by his having dilated the os uteri and thus removed any undue tension that might be producing sympathetic irritation.'

XI. In a second case (where 'there was some degree of anteversion') the same procedure had a like good effect.

XII. In a third case equally good effects, in relieving a patient from severe sickness, followed the dilatation of the os uteri with the finger.

This paper of Dr. Copeman's attracted my attention, and in a communication to the 'British Medical Journal' a fortnight after,<sup>1</sup> in speaking of Dr. Copeman's cases, I stated that they offered a strong confirmation of the truth of the doctrines I had previously expressed on the subject. The explanation of Dr. Copeman's success I held to be that in his cases the operation of dilating the os uteri was itself the means of righting the uterus, for the os must have been pulled forwards in order to dilate it, and this would have the effect of tilting the body of the uterus upwards, and thus (assuming that they were cases of anteversion: Dr. Copeman himself stated that one was) the operation reduced the displacement. I further added, 'It may be said, How do you explain the cases in which the vomiting persists as late as the eighth month, which was the fact in Dr. Copeman's third case? The answer is, that where there has been an acute flexion in the early part of the pregnancy, as the uterus enlarges (if abortion does not occur) the flexion is in most cases abolished, and the effect of this is, that the sickness generally disappears under such circumstances. But *the tissues of the uterus at the seat of the flexion are sometimes left in a diseased state, being stiffened and unduly resistant, and thus the irritation is kept up.* Dr. Copeman's treatment would undoubtedly tend to remove this stiffening and constraint.'

Dr. Copeman in a further paper<sup>2</sup> comments on various opinions elicited by his first paper, and says that his own opinions were

<sup>1</sup> *Brit. Med. Journ.*, May 29, 1875.

<sup>2</sup> *Ibid.* Nov. 1875.

not sufficiently matured to enable him to give any positive explanation of the causes of the sickness, but he is 'inclined to believe that in such cases there is always some irritating condition present, which induces a strain upon the neck of the uterus, or perhaps also on other parts of the uterus.'

In this his second paper Dr. Copeman relates a case which most curiously corroborates the views I had expressed as to displacement being the cause of the sickness :—

XIII. A lady in her second pregnancy, five months advanced, was very sick ; she had frontal neuralgia also. She had for some weeks taken violent exercise. The sickness and the neuralgia continued. The abdomen did not appear to enlarge as much as usual. On examination *per vaginam* the head was found low down in front, and the os uteri corresponding with the promontory of the sacrum. 'It seemed to me,' says Dr. Copeman, 'that the uterus was anteverted so as to allow the head to be felt below the level of the os uteri.' Dr. Copeman, by gentle, continued pressure, raised the protruding portion of the uterus out of the lower pelvis and restored the os uteri to a more natural position, after which he prognosticated no further vomiting would occur. And, in fact, so it happened—the cure was complete.

In this case, therefore, the sickness was cured *by reducing the uterus to its proper position*, Dr. Copeman not having employed any dilatation of the os as in the other cases, and it offers a remarkable illustration of the truth of the critical remarks which I had before offered on the *modus operandi* of Dr. Copeman's procedure. In fact, the patient was cured without dilatation of the os uteri at all.

XIV. *Case by Dr. Copeman.*<sup>1</sup>—Pregnant eleven weeks ; severe and uncontrollable vomiting lately. Fundus tender on pressure ; fundus displaced forwards. The displacement was rectified and bowels opened. Sickness much less next day, but as it continued slightly os was dilated with finger. Cure.

XV. *Case by Dr. Copeman.*<sup>2</sup>—Six weeks pregnant ; three weeks sickness. Position of uterus thought to be normal ; posterior lip hard and unyielding ; os gradually dilated, and, after two days' rest, cure.

XVI. *Case by Dr. Copeman.*<sup>3</sup>—Six weeks pregnant ; nearly incessant sickness two weeks. After dilatation of os by finger as far as os internum, vomiting ceased.

I subjoin some published cases in which dilatation of the os uteri after Dr. Copeman's plan was followed.

<sup>1</sup> *Brit. Med. Journ.*, Sept. 1878.

<sup>2</sup> *Ibid.* May 1879.

<sup>3</sup> *Ibid.* June 1879.



XVII. *Case by Mr. Atkinson*<sup>1</sup> *of Halifax*.—Incessant vomiting at six months, in a multipara. Vomiting ceased after digital dilatation of os uteri.

XVIII. *Case by Dr. Minot*<sup>2</sup> *of Boston*.—A sponge tent introduced into the cervix allayed the vomiting.

XIX. *Case by Dr. Dukes*.<sup>3</sup>—Patient, æt. 33. Has had five children and five miscarriages. The previous pregnancy, after eight months' incessant vomiting, was relieved by induction of premature labour. Now pregnant two months. Remedies now failing, the os was dilated digitally, the tissue being found very hard and cartilaginous. Vomiting was at once relieved and soon ceased altogether.

XX. *Case by Dr. Gooch*<sup>4</sup> *of Eton*.—Mother of two children, pregnant eight months. Incessant vomiting for two months; lying on back produced the vomiting. The os uteri found hot and painful. Dilatation by finger and separation of membranes round os; escape of much offensive discharge; relief of vomiting; pregnancy went to full term.

XXI and XXII. *Two cases by Dr. L. Rosenthal*.<sup>5</sup>—Cure by digital dilatation of os—one patient in second pregnancy, the other a primipara.

XXIII. *Case reported by Mr. J. T. Fry*<sup>6</sup> *of Swansea*.—The cervix, and especially the posterior lip, was hard and gristly. Neither the finger nor tangle tent could be introduced. A long and slightly anterior curved throat forceps was used, and gently but with some force dilated; the os was thus dilated. The effect immediate in removal of the vomiting. The patient had been obliged to have premature labour induced in previous pregnancy.

XXIV. *Case by Dr. Murillo*<sup>7</sup> *of Santiago*.—Primipara, æt. 22, in third month of pregnancy; sickness severe. On four occasions, at intervals of a day or two, the finger was introduced into the softened cervix as far as internal os. After a week sickness ceased.

The following is a series of cases which have been observed by myself during the last ten years, illustrative of the question now under consideration, and of which I have preserved notes; but I have seen others of a similar kind, records of which have not been kept.

XXV. *Retroflexion of the gravid uterus causing severe sickness*.—The subject of this case, now published for the first time, was the wife of a medical man. She consulted me first in January 1869, for severe pain in the chest and heart. The uterus was found to be retroflexed, and the last catamenial period was on December 5, about seven weeks previously.

<sup>1</sup> *Brit. Med. Journ.*, Nov. 6, 1875.

<sup>2</sup> *Ibid.* Sept. 1876.

<sup>3</sup> *Ibid.* Feb. 23, 1878.

<sup>4</sup> *Ibid.* Sept. 28, 1878.

<sup>5</sup> *Ibid.* Aug. 1879.

<sup>6</sup> *Ibid.* March 13, 1880.

<sup>7</sup> *Lond. Med. Record*, Feb. 15, 1878.

On February 20 a second omission of menstruation was noted. She was then suffering much from sickness, and pregnancy was considered to be present. This pregnancy ended favourably; but I saw nothing of the patient further until the year 1872 (January 24). Patient now 26; has had three children, two of these since I last saw her; last child is a little over three years old. Patient now six weeks pregnant. She is suffering from severe sickness. The uterus is found to be retroflexed. A ring pessary (Hodge-shaped) was applied, and she went home. On February 22 I was sent for and found her extremely ill, suffering from intense sickness. The sickness had induced severe jaundice and an extreme depression and feeling of collapse. The ring pessary had ceased to do its work properly, being too small for the increased size of the uterus, and the organ was retroverted over the top of the pessary. A larger instrument was applied. The patient, who was in a most alarming state of depression, very speedily felt better, and she visited me at my house on April 2, also on April 17; but on April 19 I was summoned to see her again with a repetition of the same severe symptoms, the vomiting having returned in a most intense degree. Again I found the mechanism of the support at fault; the exertion of coming to my house had been too much, and the uterus was still displaced. Relief followed its readjustment; but great difficulty was found in retaining the uterus in its place (though it was easy enough to replace it) owing to the indisposition of the patient to keep quiet. Whenever the uterus was in proper position the symptoms abated as if by magic; but recurred as speedily when the fundus succeeded in eluding the action of the pessary. Finally, an end was put to the case by the occurrence of premature labour on June 26, the patient being then a little over six months advanced in pregnancy.

The husband of this lady informed me, in answer to a letter in May 1876, that since that time she slowly recovered her strength, but that every now and then she is liable to attacks of 'biliary colic.' She does not, he states, now suffer from the retroflexion. She has been pregnant once since, but did not go her full time owing, he believes, to anxiety and fatigue in nursing her sick children. He remarks, as a curious circumstance, that she has only been sick when pregnant with girls.

The case is a most interesting one, the history of retroflexion as affecting the pregnancies being, in regard to many of the details, known to me from personal observation. I saw her suffering from sickness at the beginning of her second pregnancy, and relieved her from the displacement so that she went her full time. Further, I saw her in her fourth pregnancy again affected with retroflexion, and again suffering from sickness, but on this occasion in a much more severe form. On three or four distinct occasions during this fourth pregnancy the sickness actually threatened to destroy

her, but each time it was arrested by the raising of the uterus from its retroflexed position. The repetition of the disorder, however, ended in premature labour at about six and a half months; but had the patient been more careful and less wilful, it is exceedingly probable that pregnancy would have gone on to full term.

XXVI. *Sickness due to anteflexion of the gravid uterus.*—A. M., æt. 21, patient at University College Hospital, 1874. The notes by Dr. E. M. Skerritt. Married two and a half years, no children, no miscarriages. Menstruation never regular, intervals occasionally three or four months, and always scanty and very painful. She has not menstruated for the last four months, the last time after a previous interval of four months. The present illness for the last four months; gradually the symptoms have become worse. For the last three weeks she has been confined to her bed. Her chief complaint is of pain of an aching or griping character at the lower part of the abdomen, much more intense of late, and accompanied by nausea and vomiting occurring both on getting up and during the day. Expression painful, areolæ enlarged, distinct brown pigmentation, areolar glands enlarged; abdomen not distended, resonant, more resistance to pressure on left side. Pain referred to umbilicus, described as ‘cutting,’ with occasional exacerbations. General abdominal tenderness. On deep pressure over pubes a tumour is felt rather far back, giving impression of being the top of a tumour rising up from the pelvis, with a smooth rounded upper surface, two or three inches wide, flattened from before backwards, and very tender. Bladder had been previously emptied. Os uteri found to be very high up and rather far back. In front of it can be felt what seems to be a considerable swelling, extending laterally, firm, smooth, rounded, and very tender. Such was the state on admission. The vomiting continued at intervals for a few days, the pain also, the tumour felt above pubes slowly increasing in size. On March 15 Mr. Rigden, the resident medical officer, examined her, and expressed his belief that the tumour was the anteflexed uterus inclined more to the left side than right. On March 18 the tumour had risen higher, reaching now to within two inches of the umbilicus. The vomiting and retching still occasionally severe. Placental bruit heard above right Poupert’s ligament. On March 19 I was requested to see the patient for the first time. I noted that the condition of the breasts alone sufficed to indicate existence of pregnancy. The tumour above the pubes is of the shape and size of a four months’ gravid uterus. The os and cervix are high up and far back, but not changed in regard to softness in the way usually met with in pregnancy. The body of the uterus not now to be felt through vaginal roof. I expressed my opinion that the patient was certainly pregnant; that the previous observations made by Mr. Rigden and others left no doubt that the uterus had been



up to quite recently anteflexed, and that the enlarged uterus had now escaped from the pelvis.

*March 20.*—No vomiting or retching last night, no pain, no vomiting this morning.

*March 21.*—Pain latter part of night, felt very sick before breakfast, and on taking food vomited at once. Tumour still tender. Says that as long as she lies still there is no nausea, but that it occurs on moving in bed.

*March 23.*—Slight nausea when she sits up in bed early in the morning. Free from nausea now as a rule.

*March 24.*—Nausea still a little; vomited at teatime.

*March 28.*—Was sick on first sitting up in bed this morning; not sick since, though she has felt so. Not sick yesterday, but had nausea as before. Got up for first time to-day. Complains of occasional shooting pain in abdomen.

*March 30.*—Patient has not vomited since 28th, though she feels nausea at first sitting up. The patient left the hospital to-day convalescent.

XXVII. *Retroflexion of gravid uterus; severe sickness.*—Mrs. —, æt. 28, has had three children; suffered from severe sickness in all the pregnancies. Is now two and a half months pregnant, and suffering from severe sickness. The os is found far forward, the uterus much retroflexed. Ordered to lie on the face. Report later on states that the sickness was relieved at once; she had it slightly up to four months, when it absolutely ceased. She was delivered safely at full time.

XXVIII. *Anteflexion of gravid uterus; severe sickness.*—Mrs. —, æt. 33, has had eight children and three miscarriages. Now three and a half months pregnant; always suffers severely from sickness during pregnancy, together with intense mental depression during the first half of pregnancy, and during the latter half from swelling of the legs, varicose veins, and general distress. On this occasion tents have been introduced to procure abortion and relieve the sickness, but ineffectually. On examination the uterus is found to be anteflexed, the os uteri swollen, the anterior wall of cervix thin. Rest was ordered. Further history not known.

I have one case to record in which dilatation was had recourse to:—

XXIX. Mrs. —, æt. 33, multipara. Very severe sickness arising from anteflexed uterus, with great hypertrophy and hardening of cervix and os. At the seventh week of pregnancy, death threatened by continued sickness, although the sickness was at first relieved by use of a pessary. Cervix dilated by metallic dilator, resistance to dilatation very great. Following day relief, but abortion occurred on second day after. Patient died a little over a fortnight later from exhaustion.

XXX. *Anteflexion of gravid uterus; severe sickness.*—Mrs. —, æt. 34, has had four children, now pregnant for fifth time. Last child four years ago. Is pregnant three months. Her expression was, ‘Can you relieve me of the constant sickness?’ On examination it is found that the uterus is anteflexed, and the body of the uterus is quite low down in front while the os uteri is far back, the uterus being thus jammed downwards behind the symphysis pubis. The patient was ordered to remain in bed for a week, and to lie on the sofa for three weeks afterwards. Food to be given every hour in small quantities. A fortnight after reported to be much better, sickness hardly more than once a day. A month later, able to move about easily without sickness. Visited me, when eight months pregnant, quite well.

The cases which have been quoted or recorded in the preceding pages convey sufficient proof of the great efficacy—it may be almost said of the *complete* efficacy—of certain mechanical procedures at the os and cervix uteri in relieving the sickness of pregnancy in its severest form. I think there can be no doubt that the phenomena recorded are thoroughly explained by adopting the view that in these cases the tissues round the internal os uteri are prevented undergoing proper expansion. This impediment to expansion is either an actually present flexion of the uterus or a contraction and condensation of these tissues, the result of a previously existing flexion.

It is a noteworthy fact that in some of the cases recorded the cervix was found so hardened and resistant that very great difficulty was found in expanding it. Cases of this kind were always multiparæ, and the inference is natural that only in multiparæ is it likely that this inordinate resistance to mechanical *artificial* expansion will be met with.

Dr. Aubert<sup>1</sup> in his essay, ‘Influence of the Movements of the Uterus on the Vomiting of Pregnancy,’ describes a case where during digital examination the attempt to push the uterus to one side by the finger produced immediately nausea, which would have ended in vomiting had he persisted. The patient was, as afterwards appeared, in the second month of pregnancy. A second examination, made at the end of the fifth month, showed that lateral pressure produced nausea, but less severe than on the former occasion. Aubert discusses the subject of this provocation of nausea as a diagnostic measure in the early months of pregnancy. He cites Gueniot, who gives cases where rest in bed appeared in some cases to arrest the vomiting of pregnancy. He

<sup>1</sup> *Lyon Médic.* Oct. 1871, p. 431.

notes also that Stolz found pressing the uterus *upwards* did not give rise to vomiting. Aubert observed vomiting in 17 out of 37 primiparæ, while of 17 multiparæ only 4 had vomiting. Gueniot in 51 *severe* cases had 12 primiparæ and 39 multiparæ. In the discussion following Dr. Aubert's paper it was stated by M. Icard that in certain intractable cases vomiting, having lasted three or four months, had disappeared on rectifying the displacement found to exist on digital examination. M. Chatin had seen many cases where the vomiting ceased on altering the position of the uterus when displaced.

XXXI. In a case by Prof. Tarnier<sup>1</sup> of Paris, a multipara, three months pregnant, had incessant vomiting, which was allayed by plugging the vagina with wadding, thus preventing, as he thought, the uterus from moving about and being shaken.

#### GENERAL COMMENTARY.

Some writers, as Dr. Barnes, consider the vomiting of pregnancy, in severe cases, due to tension or stretching of the uterine fibres. It may very well be the case that this is in part the cause. For it seems likely that irritation might be produced by an undue degree of such stretching. But it is to be remarked that, supposing flexion to be present, it is precisely this condition which would be likely to give rise to undue stretching and tension of the uterine fibres. While undue compression is present on the concave side of the bend, there seems to be increased tension and stretching on the convex side. To those, therefore, who consider the tension theory the best, I would point out that in the flexed uterus while undergoing the process of expansion such tension will be greatly increased and irritation arising therefrom considerably aggravated. My own impression, however, is that compression is the particular and tangible irritating element in such cases. The very decided effects produced in some of Dr. Copeman's cases by dilating the cervix illustrate the efficacy of removal of condensation and tension around the internal os uteri in relieving the sickness; and Dr. Copeman's cases offer evidence of the most convincing character in this direction.

The cases where vomiting persists to the latter months of pregnancy are no doubt cases in which the condensation at the internal os has not been entirely removed by the unfolding and expansion of the uterus (see p. 334). The structures round the internal os

<sup>1</sup> *Journ. de Méd. et Chir.* and *Brit. Med. Journ.* Aug. 28, 1875.



uteri are not fully dilated up to quite the end of pregnancy in primiparæ, and thus, although the uterus may have lost its flexion, it by no means follows that the nervous filaments around the internal os are relieved of condensation, tension, and pressure at the same moment that the flexion is relieved. Thus, it may be stated that when the flexion is not of long standing, by the fifth month the uterus will have become relieved either by occurrence of a miscarriage or by the unfolding of the uterus. But if the cervical tissues are much condensed by a long-standing flexion the arrival of mid-pregnancy may not give the expected relief.

Dr. Aveling's remarks on the subject of the sickness of pregnancy<sup>1</sup> may here be quoted:—

*Vomiting during gestation.*—This troublesome and occasionally dangerous disorder has undoubted relations to posture. It has the name of morning sickness from the fact that it appears when the patient leaves her bed and assumes the erect posture. It is evidently reflex in its character, and is probably produced by hypostatic hyperemy and hyperæsthesia of the uterus. Certain it is that all obstetricians recommend the recumbent position for its relief, and often with great success. But Dr. Clay of Manchester goes further than this, and, believing gestational sickness to be dependent upon congestion and tenderness of the cervix uteri, advises a position of the body calculated to relieve the os and cervix from pressure against the pelvic viscera, best accomplished by lying on the back with the hips raised and head low. . . . Displacements of the uterus have been suggested as producing vomiting during gestation, and this is not unlikely, for mechanical hyperemy is often caused by them, and it would have the same effect as hypostatic hyperemy upon the uterine nerves.'

As bearing on the discussion of the present question, it must be recollected that until recently it was not generally known or understood that anteflexion of the uterus in the non-gravid state is a common affection, nor that anteflexion of the gravid uterus is common. In the various text-books on obstetrics, anteversion of the gravid uterus is generally not even mentioned as a possible occurrence. This observation does not apply to some of the text-books published on the Continent. One of them, at all events (M. Cazeaux), alludes to it. I myself was not aware of the possibility of its occurrence until I had encountered a case in actual practice—a case which I described in the year 1865 at a meeting of the

<sup>1</sup> 'On Influence of Posture on Women': *Obst. Jour.* Feb. 1877 (No. 47), p. 722.

Obstetrical Society of London.<sup>1</sup> I believed it then to be a very rare disorder, but my observations since that time have convinced me that in a mild form it is very common; and further, that it is, as I have already fully stated, in a more severe form associated with obstinate sickness. Looking back to my notes of this first case I find it recorded that obstinate sickness occurred in this instance, although I did not then attach any particular significance to the symptom.

Anteflexion of the uterus is more commonly found to be the cause of sickness in pregnancy than retroflexion, because it is rather more rare for the retroflexed uterus to become impregnated. Hence the result, clinically, that when obstinate sickness occurs it is infinitely more likely to be due to anteflexion than to retroflexion of the gravid organ.

The principal arguments in favour of the view that the vomiting of pregnancy is due to flexion of the organ may be briefly recapitulated: (1) Many women have no sickness, therefore it is not an essential part of pregnancy. (2) It is mostly limited to the first half of pregnancy, being, indeed, in many instances limited to the first two months. This is precisely the time during which the uterus is most liable to suffer from flexion; for when the uterus rises into the abdomen such flexion can hardly occur. (3) It is produced almost universally by the standing or sitting position, which positions would be likely to intensify or exaggerate temporarily an existing flexion. (4) It is suspended, in all but the very severe cases, if the patient remains in bed for a day or two, during which time no such exaggeration of the flexion by standing, etc., occurs. (5) It occurs to a very marked degree in cases which are known to be the subject of flexion at the time the pregnancy occurs. (6) Severe sickness and a decided tendency to abortion are very frequently associated in the same case, from which it follows that it is not unlikely, at all events, that the same cause is operative in producing both effects. (7) Lastly, I would mention my own observations as to the effect of positional treatment of the uterus, in cases of flexion of the gravid uterus, combined with sickness more or less severe. These are to the effect that for the last ten years, or rather more, during which my attention has been particularly directed to the subject, I have treated several such cases, and that I have found the sickness always to subside, or to undergo an immediate and remarkable amelioration, by so placing the

<sup>1</sup> *Obst. Trans.* vol. vii. p. 170.

patient or by so changing the position of the uterus as to favour the reduction of the existing flexion.

The history of these cases is, I believe, as follows: The uterus is, at the time pregnancy begins, in a state of flexion—generally slightly so, sometimes more marked in degree. The uterus expands, the walls increase in thickness, there is consequently an additional degree of compression of the tissues at the seat of the flexion. The natural effect of the increase of the expansion would be to unfold the uterus and straighten it, and in point of fact this result is achieved in most cases. But while this process is going on the tissues at the flexure are compressed unduly, particularly in certain positions of the body, and reflex nausea or vomiting may be thus produced.

#### TREATMENT OF THE VOMITING OF PREGNANCY.

In ordinary simple cases it will be found that this troublesome symptom can be effectually relieved by attention to certain rules as to the position of the body. The patient must be induced to maintain the horizontal position as much as possible, and it will generally be found that this is sufficient. Attention should of course be paid to the state of the bowels. After the fourth month is expired the tendency to sickness disappears in most instances, and the patient can then move about or sit upright without producing sickness. The degree to which it is necessary to enforce the horizontal position depends on the severity of the sickness.

In severe cases, where the above treatment has no sufficiently good result, the state of the uterus must be ascertained, and means should be taken to rectify any malposition which may be detected. Various mechanical devices may be put in force to aid the body of the uterus in rising up into its proper position. These will vary according as the body of the uterus is turned forwards or backwards. A simple air-ball pessary acts well in cases of ante flexion, and a well-fitted Hodge-shaped pessary is proper for cases of retro flexion (see the preceding chapter). The action of the pessary must be aided by maintenance of the horizontal position. When the uterus is restored to its place a pessary may not be further required. Indeed a pessary may not be required at all if the uterus can be raised into its place by pressure with the finger, aided by positional treatment of the patient.

In cases where the sickness is not relieved by any of the above



procedures, the case will probably be one in which the cervix uteri is very hard and unyielding. Under these circumstances the plan recommended by Dr. Copeman should be put into practice, and the cervix dilated artificially in order to remove the compression and tension around the internal os uteri. In my opinion, this treatment will be found really necessary in very exceptional cases only; in my own practice I have only found the other and more simple measures fail in relieving the sickness in one instance.

In most of the cases recorded as treated by Copeman's plan the dilatation was easily effected, and in these instances probably the dilatation was not really necessary; but in two of them certainly the dilatation was more difficult to accomplish: in one of these a two-bladed dilator was employed for the purpose, in another a throat forceps. There is of course danger of producing abortion by the employment of any instrument passing through and beyond the internal os uteri. The finger would be the safest dilator, but in the really difficult cases it may be found, as in the case related at page 368, that the finger could not be introduced at all. Careful dilatation with a steel two-bladed dilator—on the principle of the one represented at page 326, but larger at the extremity of the blades—seems to me to be the best method of accomplishing the desired end, if the finger cannot be made to enter the cervix. The dilatation should not be rapidly effected, the object being to gently release the tension of the structures without exciting contractions of the uterus. When the os externum admits or can be made to admit the finger it would be best to employ the finger for the further dilatation of the canal higher up. It must be recollected that the cervical canal has a length of rather over one inch, and it appears necessary to dilate the canal at its upper extremity in order to give the necessary relief under such circumstances. The employment of the finger has one drawback—namely, that as a rule the finger cannot be readily introduced so far as the internal os uteri without passing a considerable part of the hand into the vagina.

The induction of premature labour could be practised, as a last resource, when other measures are found to be of no avail and the life of the patient is at stake.

## CHAPTER XXIX.

## DISEASES AND INJURIES OF THE OS AND CERVIX UTERI.

The 'Ulceration' Theory of Uterine Disease—Laceration of the Cervix Uteri: its Effects and Results—Dr. Emmet's Views on the Subject—His Method of Treatment—Importance of Eversion of the Cervical Lining: Causes of the same—Hypertrophy, Cystic Degeneration of the Os Uteri, etc. Ulcerations of the Os Uteri—Erosions—True Ulcerations—Syphilitic Ulcerations.

## DISEASES OF THE OS AND CERVIX UTERI.

'A WHOLE generation of physicians,' says Dr. Emmet,<sup>1</sup> 'has been misled by the delusion of chronic inflammation and ulceration of the uterus—conditions which no one has yet been able to demonstrate on the dead body.'

While, however, most of the so-called ulcerations and inflammations can be shown to be referable to changes of other parts of the uterus, we have of late learnt that there are local conditions and diseases of the os and cervix which appear to require more attention than they have yet received—namely, the changes incident upon or following after laceration of the cervix uteri during parturition. It is not a little remarkable that, largely used as the speculum has been in the investigation and treatment of the diseases of the uterus, cases of severe lacerations of the cervix seem to have been overlooked until a very recent period even by those who were most in the habit of employing the instrument.

It will be necessary to consider systematically the changes observed at the os uteri, and in so doing to endeavour to show the relation of these changes to the diseases of the other portions of the uterus.

## LACERATION OF THE CERVIX UTERI.

It not unfrequently happens that in the process of parturition the uterine cervix is more or less injured, the vaginal portion being lacerated in various degrees. But it cannot be said that these lacerations have been considered as constituting lesions of

<sup>1</sup> *Loc. Cit.* p. 129.

any considerable importance until recently. The subject has, however, attracted much attention in the United States during the last few years, and it is evident that the lacerations in question are very important factors in the production of diseases or discomforts referable to the cervical part of the uterus. Dr. Goodell, writing in 1879, states that about one-sixth of the women who have had children, applying at the University of Pennsylvania Dispensary, have an ununited laceration of the cervix.

The second edition of Dr. Emmet's valuable work contains a full account of the subject, together with the results of his own observations and inquiries. The following is the substance of Dr. Emmet's account :—

Since 1862 Dr. Emmet has practised an operation in such cases. In 1874 he published a paper on 'Lacerations of the Cervix Uteri as a frequent and unrecognised Cause of Disease.' Roser,<sup>1</sup> it appears, first described what he termed 'ectropium,' of which there are two forms—one arising from cicatricial distortion, the other by the crowding forward and swelling of the mucous membrane. Roser indicates as causes, excessive fissures, also probably obstetrical incisions and gangrenous destruction of the os uteri. Roser regarded many of the cases of obstinate and inveterate hypertrophy thus arising as incurable; and as regards the cicatricial ectropium says, 'One will scarcely be prompted to undertake a curative experiment.'

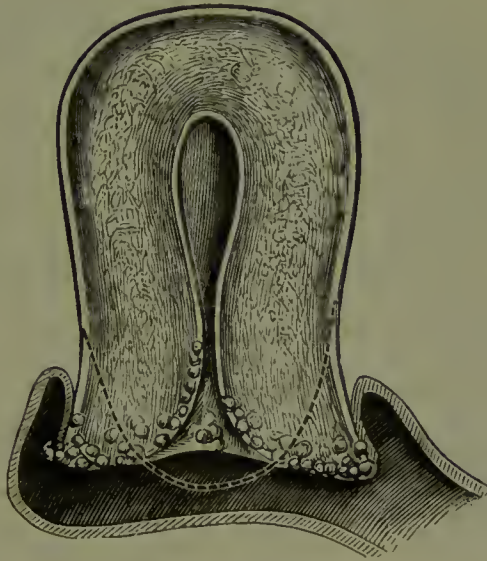
Dr. Emmet thinks the term 'cicatricial ectropium' not well-chosen, for 'the flaps in the cervix are first rolled out and forced apart from the enlarged uterus resting on the floor of the pelvis, and this is increased as the circulation becomes obstructed, and as the mucous follicles undergo cystic degeneration. The condition at length becomes one of partial strangulation, as in paraphymosis.' He thinks the English term better than trachelorrhaphy or hysterio-trachelorrhaphy. Of 500 fruitful women who have come under his care in private practice, 32·80 per cent. who had been impregnated, and now suffered from some form of uterine disease, were found to have laceration of the cervix. The injury on the left side is the most common, and double laceration the next. More than thirty per cent. of the cases were attributed to tedious labour. He thinks rapid labour must be a cause to a greater extent than his figures prove. Sterility resulted in 71·34 per cent. of cases where the cervix was so injured. Menstruation is in 51·59 per cent. of cases increased (in length of days). The

<sup>1</sup> *Archiv. f. Heilk.* Leipzig, No. 298.



occurrence of cellulitis in connection with or as a consequence of laceration of the cervix is the most important and most frequent complication. Thus, of the 164 women last under observation, 33, or 20·12 per cent., had cellulitis at the time of the first examination.

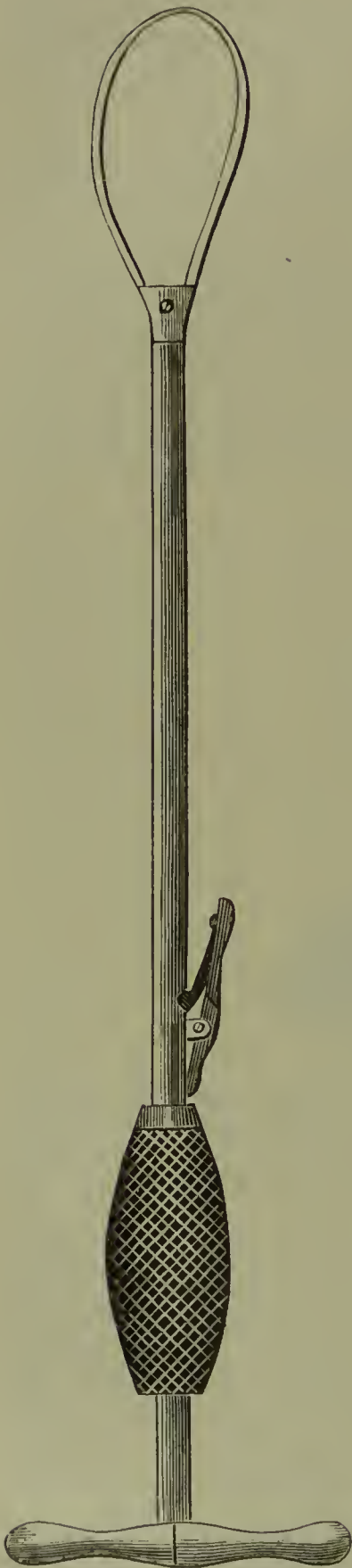
The laceration is common, is often overlooked at the time owing to softness of the parts, and it is most common in the middle line, anterior more common than posterior. If in the median line and limited to cervix it generally heals rapidly. It may of course pass into bladder and then may leave fistula. Laceration through posterior lip also heals rapidly and may not be suspected unless the inflammation extends sufficiently into posterior *cul-de-sac* to set up attack of inflammation. If cellulitis occurs at this point it always

FIG. 124.<sup>1</sup>

induces a most intractable form of retroversion, owing to the formation of a cicatricial band felt as a cord. This form of laceration seems from the history of the cases due to 'posterior occipital' position.

When, however, the laceration is in a lateral direction and extends beyond the crown of the cervix, a condition arises which defeats the reparative power of nature. There will exist a tendency for the tissues to roll out from within the uterine canal when the upright position is assumed. The lips are forced apart by the weight of the uterus above, the posterior being pushed backwards, the anterior forwards. The angle of the laceration

<sup>1</sup> The drawing exhibits results of double lateral laceration, showing also enlarged mucous follicles. The dotted line shows the outline when the flaps are brought together (Emmet).

FIG. 125.<sup>1</sup>

becomes the starting-point of an erosion, which gradually extends over the everted surfaces. The involution is retarded, the erosion bleeds readily as it extends, and the woman gets about; a profuse cervical leucorrhœa ensues, and the appearance of a frequent show causes the patient to seek relief. This laceration was until recently universally mistaken for ulceration, and it long baffled all treatment: improvement from rest was followed by relapse on attempt at exercise.

The mucous follicles of the cervix will be found to have gradually undergone cystic degeneration.

When the laceration is *double* and lateral, the flaps flatten against the posterior wall of vagina or floor of the pelvis, so that all appearance of laceration becomes lost. On digital examination the cervix is found to be larger than the body of the uterus. The relative size of such a cervix to the body of the uterus is about that of the top of a half-grown mushroom to its stem. These flaps can be rolled in on using the speculum with the patient on the side, and by seizing the anterior and posterior lips of the cervix with a tenaculum in each hand.

There is a variety when the laceration is unilateral, giving obliquity to the uterus.

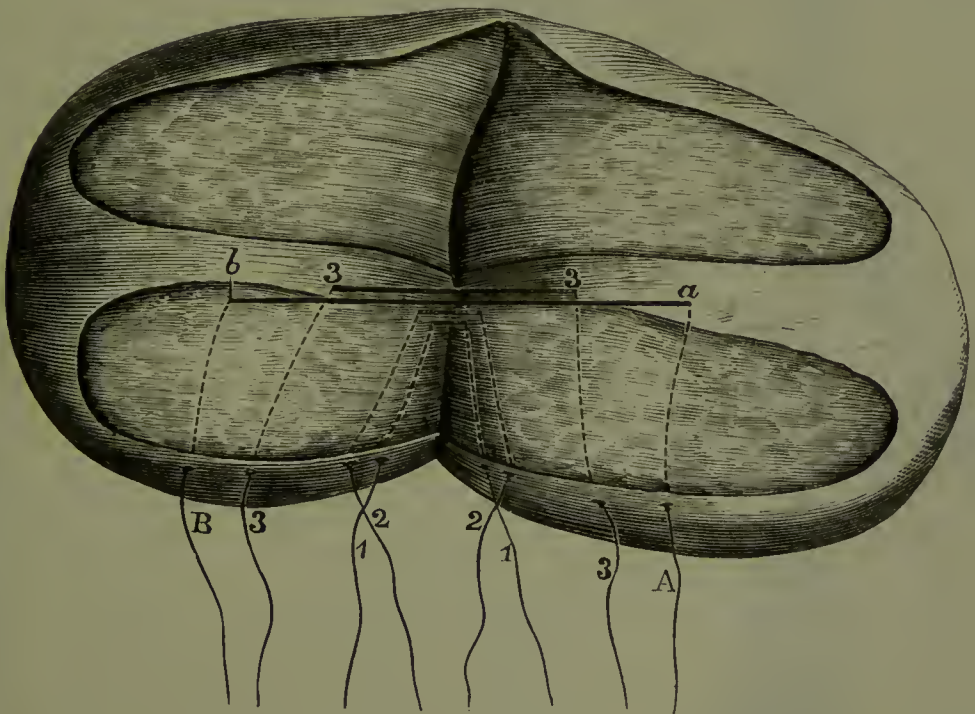
*Treatment.*—Dr. Emmet considers an operation is required where the condition is evident, where enlargement of the uterus still remains, or where the woman suffers from neuralgia.

The *preparatory* measures are, use of vaginal hot-water injections, use of

<sup>1</sup> Fig. 125, watch-spring tourniquet used by Emmet.

a pessary to lift uterus from floor of vagina, application of tincture of iodine or iron twice a week with glycerine dressings, and pledgets of cotton, one before and one behind, to keep flaps together. It is often necessary to puncture the overloaded cysts and so reduce the strangulation and swelling; iodine is applied after this scarification.

The *operation* is best performed with the patient on the side. First the flaps are brought together by tenacula. Then the uterine tourniquet—a special instrument for the purpose, constructed of a piece of watch-spring—is applied, for the hæmorrhage is often excessive. Emmet now only uses it when tissues are unusually soft; the use of hot water before the operation renders it less liable to occur.

FIG. 126.<sup>1</sup>

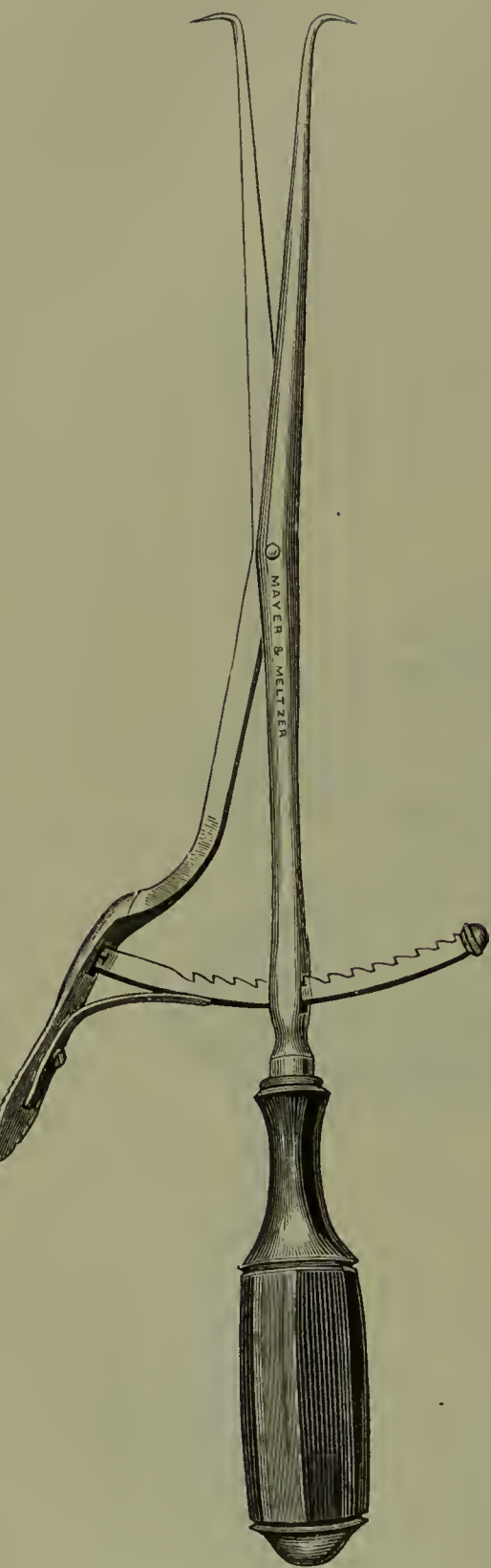
The scissors is the instrument preferred to freshen the surfaces.

The uterus is drawn down, if possible, to outlet of vagina during operation. A short *round needle* is best, and wire sutures are employed as shown in the drawing. The sutures are removed in seven days. The patient is kept in bed for twelve days. The pessary, which is removed for the operation, is replaced soon after the operation is at an end.

Dr. Emmet says that the hypertrophy and elongation of cervix

<sup>1</sup> The drawing (fig. 126) shows the shape of the raw surfaces after denudation (Emmet).



FIG. 127.<sup>1</sup>

will almost invariably be found due to laceration of cervix uteri, and the remedy is to repair the laceration. He denounces amputation with scissors, knife, or cautery, as malpractice, and denounces, as most uncalled-for, cautery or caustics to heal a so-called ulceration. 'Amputation of the cervix or the repeated application to it of cautery or caustics, will maim any woman and most likely render her sterile, and for the want of the support which the cervix normally affords she will be liable to suffer from displacement of the uterus.'<sup>2</sup>

At the Cambridge meeting of the British Medical Association, held 1880, Dr. Montrose A. Pallen of New York exhibited instruments employed by him in repairing the lacerated cervix. In his operation scissors of various shapes are employed to facilitate proper denuddation. Dr. Pallen strenuously recommends the operation, and expresses his conviction of the necessity and advantages of the operation in suitable cases.

Looking over the records of my own cases, I find cases in which lacerations of the cervix have been noted as being present. From what I now hear of the cases related as observed in America, it seems evident that in developing the subject and pointing out how the lesion is to be remedied, our transatlantic brethren have done a good service to gynæcology. I believe Dr. Playfair was the first to perform this operation in England, and he has

recently communicated a paper on the subject to the Obstetrical

<sup>1</sup> Fig. 127 shows an instrument (reduced in size) made by Meyer & Meltzer, admirably adapted for holding the uterus during the operation.

<sup>2</sup> *Op. cit.* p. 483.

Society of London. I have myself successfully performed it, and have come to recognise it as a most necessary and valuable operation.

A severely lacerated cervix implies a removal of the proper support to the body of the uterus, and dislocation of the organ is no doubt favoured thereby. A further effect is the exposure, the friction, the irritation of the lining of the cervix, resulting in abrasion, bleeding, hyper-secretion, etc., of the irritated surface. It is true that by elevating the uterus the latter class of evils is greatly lessened; so much so, in fact, in many cases, that the laceration itself becomes, or appears to become, a minor evil. Dr. Emmet's account is in conformity with this view of the matter; and it is evident that, while considering it necessary to repair the cervical laceration, he found it also necessary in many cases, both before and after the operation, to sustain the body of the uterus in position by a vaginal pessary.

An important practical question is to determine how far *eversion of the cervical mucous membrane* is possible without laceration of the cervix. It is now perfectly clear that in a considerable number of cases eversion arises in connection with cervical laceration, but there can be no doubt also that very extensive eversion may occur without such laceration. As a rule, in long-standing cases of acute flexion, there arises a thickening, swelling, and eversion of the os uteri on the anterior or posterior aspect, and this may even occur in patients who have not had children. Thus, in ante-flexion cases the anterior side of the os, in retroflexion cases the posterior side, becomes swollen and the mucous membrane expands. In women who have had children it is most liable to occur undoubtedly, but my observation enables me to say that it may occur even to a considerable degree in cases where there has certainly been no laceration.

Hypertrophy, cystic degeneration of the lips of the os uteri, eversion of the mucous membrane, abrasion or erosion of the mucous membrane so everted, are all liable to be met with, and when excessive in degree may be found to have originated in a lacerated cervix, while in other cases they result from long-standing congestion of the lips of the os uteri, the primary cause of which has been a severe flexion of the uterus. In some cases we find the os uteri represented by two rounded protuberances, hard and firm, red and angry-looking on the cervical aspect, irregular as regards the surface from nodular swellings the result of cystic degeneration, and secreting freely a sanious, yellowish fluid. The cystic

degeneration, as it has been termed, appears to be the result of overgrowth and distension of the Nabothian follicles. In process of time the lips of the os have become hypertrophied, hardened, and otherwise diseased, and the two factors which *singly* or *jointly* operate in bringing about this state of things appear to be chronic flexion of the uterus and laceration of the cervix during parturition.

The opinion has been expressed by more than one authority in America that the existence of laceration of the os uteri constitutes predisposition to cancer of the os uteri, and that for this reason, if for no other, the lesion in question is one demanding operative interference. (Further remarks on this subject will be found in a later chapter, on 'Cancer of the Uterus.')

#### ULCERATIONS OF THE OS UTERI.

After what has been said in reference to laceration of the cervix and eversion, due either to this injury or to the existence of flexion, the consideration of the subject of 'ulcerations' of the os uteri is simplified.

Simple eversion of the cervical lining has been frequently taken to be 'ulceration.' Dr. Farre some years ago<sup>1</sup> said: 'In the more common degree of hypertrophy with eversion, a crescentic protrusion only of the cervical lining occurs. The unevenness of the surface caused by the slightly swollen and prominent rugæ, and as often by the numerous little depressions consisting of enlarged mucous crypts, according as one or the other of these is the predominant normal structure in the cervix, gives to the part during life the appearance of a raw and granular surface, while the natural boundary between the lower edges of the cervical canal and the lips of the os tinæ being now transferred on to the latter in consequence of this eversion, an abrupt semicircular line becomes visible, which, while it only indicates the natural termination here of the vaginal epithelium, is frequently mistaken for the margin of an ulcer.' The stretching of the parts, which is sometimes produced by the mere introduction of the speculum, may give rise to this kind of eversion of the lining of the cervix, whenever the os uteri is a little lax and soft, and slightly open.

*Erosions* of the everted cervical lining are not very uncommon, but they rarely pass into the state of true ulceration. The loss of tissue involved is generally merely removal of the epithelium of the part affected, the vascular or proper tissues

<sup>1</sup> *Cycl. An. and Phys.*: article 'Uterus.'



underneath being unaffected. The removal of the epithelium, however, leaves the villi uncovered, and these are apt to undergo hypertrophic changes, and increased vascularity also results. What is termed a 'granular' change is sometimes noticed in cases where the abrasion or erosion has been in existence for some time. During pregnancy, as was observed by Cazeaux some years ago, the villi of the cervical mucous surface undergo hypertrophic changes, and are more vascular than usual. Moreover, they readily bleed when touched, and these 'physiological' changes (for such they are) must not be confounded with ulceration or erosion produced by disease.

Erosions of the everted cervical lining appear to be in great part due to the friction of the surface against the vaginal floor produced by the movements of the body. A great secretion of fluid often occurs in cases of this kind, the fluid being ichorous, or watery, or sanious, according as the blood-vessels of the exposed villi are lacerated or not. I have observed a tendency to exfoliation or erosion of the mucous membrane at the os externum, in cases of chronic flexion with the retentive form of leucorrhœa. Here the retained uterine secretions become irritating, and this irritation probably has an eroding effect on the delicate mucous membrane at the os uteri.

*True ulcerations* of the vaginal portion of the cervix uteri are sometimes met with. They are generally associated with enlargement and hypertrophy of the cervix uteri, whatever may be the cause of that enlargement; or with those affections of the uterus usually classed under the term 'prolapsus uteri.' They are produced by the mechanical irritation to which the prolapsed cervix is exposed, and have all the characters of ordinary ulcerations.

Another form of ulceration of the os and cervix uteri, which is rare, is by some authors believed to be of cancerous nature, by others to be of *tuberculous* nature. Dr. West, in whose work<sup>1</sup> will be found a careful *résumé* of what has been said by different authorities on the subject, believes that these intractable ulcerations are instances of epithelial carcinoma; and he agrees with Robin in considering that this kind of ulcer is to the uterus what lupus or cancrroid ulcers are to the face. There appears to be no reason, however, why both sides should not be right, or for denying that both tuberculous ulcers of chronic nature and lupoid disease of the cervix uteri may be witnessed, though not of course in the same individual. It can very rarely happen that this ques-

<sup>1</sup> *Op. cit.* p. 361.

tion will arise practically for determination, these intractable ulcerations being very uncommon.

*Syphilitic affections, ulcerations, etc., of the os and cervix uteri.*—Concerning true chancre—primary syphilitic ulcer—of this part, there is but little difference of opinion. It is pretty well understood that it is very rare, although it has been observed. Chancre of the os or cervix uteri presents an appearance like that of chancre observed elsewhere; it is said that there is a greater disposition on the part of the ulcers here situated to bleed. The only conclusive evidence of the nature of the ulcer would be its reproduction by inoculation.

Respecting *secondary syphilitic* eruption, or ulceration of the os and cervix, there has been much discussion, nor is it at all settled how frequently ulceration is present in individuals affected with secondary syphilis. It does not appear that there is anything peculiar about the character of the ulcerations present in these cases, or which would enable us to say at once that such and such an appearance was due to syphilis. My own observations induce me to agree with Dr. Tyler Smith, who held that ‘in almost all cases in which leucorrhœa and disease of the os and cervix uteri are present in women suffering from constitutional syphilis, the uterine symptoms are a genuine manifestation of the constitutional or secondary disorders.’<sup>1</sup>

The diagnosis of secondary syphilitic ulceration of the os and cervix will be materially influenced by the presence or absence of a syphilitic history in the particular case, and before proceeding to form a decision on the point all the antecedents of the patient must be carefully scrutinised. The effects of anti-syphilitic remedies would frequently assist us in coming to a conclusion.

*Treatment of ulcerations and hypertrophy of the os uteri.*—An exceedingly important element in the treatment of these cases is *rest*, and careful ablution at frequent intervals with warm water. It frequently happens that, by these measures alone, the size of the os uteri is very greatly diminished (see ‘Treatment of Congestion of the Uterus,’ page 104), and in all cases, whether subsequently requiring operative treatment or not, these measures may be advantageously carried out. Styptic applications should be subsequently employed; and a solution of nitrate of silver, or tannic acid, or dilute iodine tincture, are useful in further reducing the hypertrophy (see page 105).

<sup>1</sup> *On Leucorrhœa*, p. 98.

## CHAPTER XXX.

## CHRONIC INVERSION OF THE UTERUS.

CHRONIC INVERSION OF THE UTERUS.—Causes, Effects, and Varieties.

DIAGNOSIS.

TREATMENT.—Reduction by Systematic and Continuous Pressure aided by Anæsthesia—Treatment by Excision.

WE are here concerned only with cases of chronic inversion of the uterus. The consideration of the condition in a recent state belongs to the domain of obstetrics proper.

Inversion of the uterus may occur during, or soon after, parturition, and this is its most frequent cause; but it may occur also in connection with the presence of fibroid growths—polypi—attached to the internal surface of the organ, and thereby distending it. It may be partial or complete. In its complete form it may arise after parturition; polypi generally occasion an incomplete form of the displacement. When there is complete inversion, the whole organ is turned inside out; the uterus lies wholly in the vaginal canal, and in recent cases projects considerably outside the vulva. When occurring in connection with parturition, the uterus gradually diminishes in size, though less quickly than under ordinary circumstances, and at the end of a few months the uterus may be wholly within the vagina, but the inversion still present in its complete form.

The symptoms and effects of inversion of the uterus are generally of a striking character, but not invariably so. Hæmorrhages, and almost incessant loss of blood in smaller quantity, are usually observed. Pains of a dragging character, and a sense of great discomfort more or less continuous, are experienced by the patient, these effects being not seldom of a very aggravated character.

The patient frequently becomes very anæmic, and there may be great general prostration, breathlessness, and loss of power of locomotion, with œdema of the lower extremities, etc. Chronic inversion of the uterus may exist for many years; cases of twenty-five or thirty years' duration are well authenticated.



In cases of inversion of the uterus a tumour is felt occupying the vagina, which varies in size according to the degree of the inversion and the time which has elapsed since the occurrence of the inversion. Thus, if the inversion be recent and complete, the tumour in the vagina may be so large as to project beyond the vulva; but if some weeks have elapsed, it may be no larger than the fist, although still complete. The tumour is smooth, uniform, and no opening is to be detected on the surface. On digital examination, it is found that the vagina terminates above, round the pedicle of the tumour, in a perfect *cul-de-sac*, and the surface of the tumour is actually continuous with that of the vagina. At the point where the os uteri should be situated this pyriform tumour projects downwards into the vagina. The tumour itself is hard and firm, and resistant, when the inversion has lasted a few weeks. If the patient have been recently delivered, if a tumour has occupied the vagina since delivery, and if, further, it be known that there was no tumour previously, the diagnosis is not usually difficult to establish, provided the inversion be complete. This statement is, however, not quite universally true, for pregnancy may be associated with polypus, and the polypus may be thrust down into the vagina immediately after the expulsion of the child. Gooch and others have related cases of this kind. There is no possibility, in complete inversion, of passing the finger above the pedicle of the tumour, nor can the uterine sound be made to pass in this direction. The symptoms attending the production of inversion during labour are characteristic: excessive pain—which may, however, be absent—prostration, syncope; the uterine tumour is no longer felt above the pubes; hæmorrhage is usually observed. Inversion may occur just at the end of labour, or a few days after, from incautious exertion on the part of the patient. Inversion of the uterus usually gives rise to frequent and profuse hæmorrhages, together with great discomfort and pain; but it does now and then happen that the symptoms are not so urgent as to attract much attention until the disease has lasted for some time. That the symptoms and history of the case are not always demonstrative of its true nature, is proved by the fact that inversion of the uterus has been frequently looked upon and treated as polypus.

With reference to *the diagnosis of complete inversion from polypus*: in both cases the tumour is generally more or less pyriform; in both cases it is hard, resistant, smooth; in both the tumour terminates above by a constricted portion; in both there

are hæmorrhage, leucorrhœa, and symptoms produced by pressure on the adjacent viscera ; but in the case of inversion, neither the sound nor the finger can be passed upwards beyond the pedicle of the tumour, whereas, in the case of a polypus projecting down into the vagina from the interior of the uterine cavity, an instrument can be passed into a cavity beyond the neck of the tumour ; the neck of the tumour being encircled by the os uteri, the sound can be made to pass into the interior of the uterus. This distinction is not a perfectly reliable one, for there is occasionally a difficulty in detecting the cavity above when it really exists,<sup>1</sup> and sometimes there is found to be adhesion of the sides of the polypus to the adjacent wall of the vagina or to the interior of the cervix uteri (West, Blundell) ; and, further, it may happen that the polypus grows from a part of the uterine cavity close to the orifice (Gooch). It is said that in cases of inversion the tumour is very sensible ; that this sensibility is wanting in cases of polypus ; that the surface of the inverted uterus is rough, whereas the surface of a polypus is smooth ; but no reliance can be placed on such supposed distinctions. If an examination be made within a week after the labour, the fact that the normal uterine tumour is absent from the hypogastric region, associated with that of the presence of a rounded firm tumour in the vagina, will demonstrate the nature of the case ; at a later period this remark would not hold good, or at least in the same degree. Another mode of examination, enabling us to distinguish between inversion and polypus, is the combined examination by the rectum and by the bladder—*i.e.* the finger introduced into the rectum and a sound into the bladder, by which means an absence of the body of the uterus from its normal position can be substantiated (Arnot).

In cases of *partial inversion of the uterus* the difficulties as regards the diagnosis are more considerable than when the inversion is complete. Here the pedicle of the tumour is encircled by the os uteri, as observed when a polypus projects downwards from the uterus into the vagina. In cases of partial inversion, however, the sound cannot be passed so far beyond the encircling band formed by the os uteri as usual, whereas in cases of polypus the cavity may be even longer than ordinary. A complex condition has been now and then observed, in which the diagnostic mark alluded to might fail ; that, namely, in which there is a polypus of the uterus forming the lower part of the tumour, this tumour having dragged down the fundus uteri with it and produced partial inver-

<sup>1</sup> See *Lancet*, 1827-28, vol. i. p. 327.

sion, where, in fact, the two conditions, polypus of the uterus *and* inversion of the uterus, are associated. Dr. McClintock<sup>1</sup> directed attention to a new diagnostic sign of the presence of inversion. It is this: When the case is one of inversion, on drawing the tumour downwards the lip formed by the os disappears; on ceasing this traction the lip is again evident. A very careful consideration of the previous history, combined with examination of the parts, are necessary to come to a correct conclusion in these doubtful cases. The tumour due to a partially inverted uterus is hard and firm, like a fibrous polypus; the symptoms produced by it are pretty much the same—hæmorrhages, discharges, etc.—but there is more pain, more discomfort to be looked for in the case of inversion than when there is only a polypus present. Again, the double examination by the rectum and bladder is very important in assisting the diagnosis, the more so as in cases of polypus partly projecting from the os—the particular cases, in fact, which most closely simulate this partial inversion of the uterus—the body of the uterus is generally more or less enlarged, owing to the presence of the polypus within it.

#### TREATMENT.

There has been usually found but little difficulty in replacing an inverted uterus when the condition has been detected at once, as in the process of labour. When, however, the disease is a chronic one, the difficulties to be encountered are great. We must first speak of the treatment of cases of chronic inversion of the uterus of the simple and uncomplicated kind.

Formerly these cases were only treated by excision; the patient was relieved of the tumour and of her troubles by means of the knife, at the expense necessarily of loss of all power of bearing children subsequently, and not unfrequently at the expense of loss of life altogether. Happily art has stepped in to the rescue of these cases, and a method has obtained general adoption in the profession, by means of which the normal shape of the uterus is restored, even in long-standing cases. M. Valentin,<sup>2</sup> in 1847, reduced an inverted uterus after the lapse of upwards of a year from the date of its occurrence. The reduction was performed by the aid of the two hands, the left placed over the hypogastric region, the right in the vagina, the tumour being grasped by the finger and thumb of the right hand. These manipulations were

<sup>1</sup> *Op. cit.* p. 91.

<sup>2</sup> Quoted from *Gaz. Méd.* in Ranking's *Abstracts*, vol. vii.



performed while the patient was under the influence of ether; and after application of continuous pressure in this way for about ten minutes the reduction was accomplished, and the patient completely cured. The etherisation in this case enabled the patient to bear the operation, it having been relinquished previously owing to the great pain produced. Mr. Canney,<sup>1</sup> of Bishop Auckland, reduced a chronic case of inverted uterus of five months' duration, in 1852, under the influence of chloroform, and by manipulations pretty much the same as those described above. M. Barrier's<sup>2</sup> case, also in 1852, is the next reported, the duration having been considerable. These three cases had escaped my notice in preparing the first edition of this work. Dr. Tyler Smith,<sup>3</sup> in 1856, successfully reduced an inverted uterus of twelve years' duration after several days' treatment, the uterus being pressed and moulded by the fingers for about ten minutes night and morning. After repeated trials, the cervix uteri, which was firmly contracted round the neck of the projecting tumour, began to yield a little, and the tumour could be slightly sunk in the os. After each operation, a large india-rubber air-pessary was placed in the vagina, and inflated to as great an extent as the patient could bear. The air-pessary was worn, with few exceptions, day and night. 'After more than a week of these proceedings,' says Dr. Tyler Smith, the patient felt a good deal of pain through the whole of one night; and in the morning, when an examination was made, it was discovered that complete reinversion had taken place. A small air-pessary was afterwards worn for a few days, and the recumbent position maintained. Subsequently the patient became pregnant.

The principle of the successful reductions effected in obstinate cases is to maintain a persistent pressure on the inverted part, or rather a combination of moulding and pressure by means of the fingers and thumb introduced into the vagina, counter-pressure being applied externally, and when this does not succeed, to apply a more continuous but less forcible pressure by means of an indiarubber air-pessary. The part which has been inverted last should be pushed upwards first, as Dr. McClintock has very properly remarked. The uterus is capable of being readily moulded, and on this property of the uterus our attempts are to be based; sudden, too forcible, and too abrupt manipulations must be avoided. Chloroform or ether, as the reports show, are invaluable adjuncts in the treatment.

<sup>1</sup> Ranking, vol. xvi.

<sup>2</sup> *Ibid.*

<sup>3</sup> *Medico-Chir. Trans.* vol. xlii. p. 183.

Dr. Marion Sims proposed in difficult cases to make a vertical incision through the uterine tissues on each side, at the part corresponding to the os uteri, so as to allow more easily of the reduction of the tumour. Dr. Barnes<sup>1</sup> also performed an operation on this principle successfully. The case was one of some months' standing, where continuous pressure had failed. He drew down the uterus and made three vertical incisions. The uterus was at once reduced by taxis, and the case did well. He recommended that in future two incisions only should be made, and that continuous elastic pressure (by water-bags) should be employed to restore the inverted uterus.

Dr. Emmet's method of reduction is as follows :—

With one hand in the vagina, the fundus, in the palm of the hand, is firmly grasped and pushed upwards, the fingers then immediately separated to the utmost; at the same time the other hand is employed over the abdomen in the attempt to roll out the parts forming the ring by sliding the abdominal parietes over its edge. This process is continued some time, and later on the tips of the fingers are used to complete the re-inversion. Dr. Emmet has also employed sutures for closing the lips over the fundus after a partial reduction, to preserve temporarily the advantage gained.<sup>2</sup>

In Dr. Emmet's operation an important element is the application of counter-pressure over the uterus from above, and the taxis performed in this way has proved very successful in his hands. Dr. Tate of Cincinnati<sup>3</sup> records an interesting case where counter-pressure was made above by two fingers carried up in the rectum, the fundus being then pushed up by the two thumbs. As this procedure tired the hands, the urethra was dilated and one finger of the other hand inserted so as to get counter-pressure in front as well as behind. The reduction was finally effected by pressure from a stem placed below instead of the two thumbs. Silver wires were placed in the os for three days.

Dr. Jas. P. White states that his experience is that 'well-directed pressure upon the fundus, if continued long enough, will in all cases, unless prevented by firm adhesions, result in restoration or reposition, no matter how much time may have elapsed since inversion has occurred.'<sup>4</sup>

His method of reduction is as follows: The operator kneels on the ground, the patient is placed on the back at the edge of

<sup>1</sup> *Med. Chir. Trans.* vol. liii.

<sup>2</sup> *Op. cit.* (2nd edit.) p. 424.

<sup>3</sup> *Cincinnati Lancet and Observer*, March 1878.

<sup>4</sup> *Transactions of Philadelphia Medical Congress*, 1876.

the bed, anæsthetised. The uterus is then dealt with by the right hand introduced into the vagina entirely. The hand grasps the uterus and presses upon the tumour; at the same time Dr. White's apparatus is brought into play. It consists of a hard rubber cup and stem, the latter a little curved; the stem ends externally in a pyramidal shaped spiral spring of steel wire. The cup is placed against the fundus uteri, the base of the spring against the breast of the operator. The left hand of the operator is used to make

FIG. 128.<sup>1</sup>

counter-pressure on the upper part of the uterus through the abdominal walls.

Dr. White relates three typical cases, of six months', three years', and twenty-two years' duration respectively; in the last case reduction was effected in less than two hours. Dr. White says he has performed the reduction successfully in this way in nine other cases.

The more recent experience of various operators would seem to be in favour of reduction of the inverted uterus by a process of

<sup>1</sup> White's method.

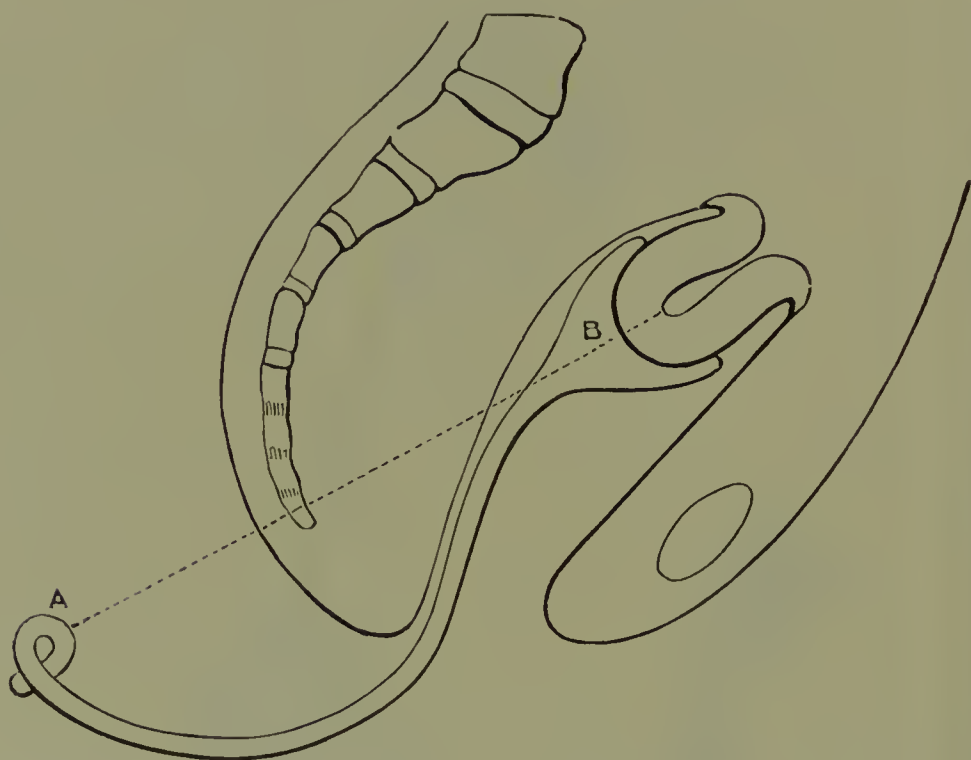


continuous elastic pressure spread over some little time, in preference to a more rapid and summary method of procedure. And various methods have been successfully adopted of applying such continuous elastic pressure.

Thus Dr. Barnes used a stem provided with an elastic cap for the purpose of keeping up the pressure. (This was employed after incising the os uteri at two or three points in its circumference so as to relax or weaken the constriction: incisions one-third of an inch deep and two-thirds of an inch long.)

Mr. Lawson Tait has employed a stem with a cup-shaped end, six inches long, and pressure is made by means of elastic ligatures

FIG. 129.<sup>1</sup>



fixed to the stem outside the vagina and attached to a band round the waist.

Dr. Aveling<sup>2</sup> has improved the stem used as above by giving it an external perinæal curve. Dr. John Williams records a case thus treated; a cup of vulcanite was mounted on a metallic stem having a perinæal curve, and to it affixed four elastic bands, two carried in front and two behind. At the end of twenty hours removed, partial re-inversion having been effected. The instrument re-applied and bands tightened, and after another twelve hours

<sup>1</sup> Fig. 129 shows the shape of Dr. Aveling's instrument; the line A B the direction of the pressure.

<sup>2</sup> *Obst. Journ.* lxxiii. p. 21.

the operation completed. In this case the inversion was of two years and four months' duration. Dr. Aveling records two cases of his own, and states that the average time occupied in three cases in reducing the uterus was forty hours only.<sup>1</sup> A case of inversion is recorded by Dr. Gervis,<sup>2</sup> treated in a similar way after other methods had been only partially successful. Dr. Wing of Boston, U.S. of America, reports a case of fourteen months' standing cured in three days by the above method.

*Reduction after abdominal section.*—Dr. Thomas of New

FIG. 130.<sup>3</sup>

York performed a remarkable operation in an obstinate case. He cut into the abdomen, dilated the *cul-de-sac* of the uterus from within the abdomen, by a steel dilator, and thus reduced the inversion by the taxis. Recovery followed. Previously the pressure and incision method had failed. In three other cases, by ingenious variations of the pressure treatment, Dr. Thomas succeeded in restoring the uterus.

<sup>1</sup> *Brit. Med. Journ.* Sept. 6, 1879.

<sup>2</sup> *Obst. Journ.* lxxx. p. 373.

<sup>3</sup> Fig 130, from a preparation in University College Museum, represents inversion associated with a large polypoid tumour. The tumour has produced complete inversion of the uterus and of the vagina.

The treatment of cases of *inversion of the uterus associated with polypus of the uterus* requires a few words. When the polypus has a large basis of attachment, the fundus may be so drawn downwards that what appears to be the pedicle of the polypus is really the uterus itself. Thus a specimen was exhibited at the Pathological Society, and referred to Dr. Marion Sims, Dr. John Ogle, and myself, for examination, in which such a tumour had been excised, and a circular piece comprising the fundus uteri had been removed with it.<sup>1</sup> The case shows the necessity for great caution in excising tumours projecting through the os uteri. In most cases where a polypus projects into the vagina from the uterus, it draws down the wall of the uterus a little, and when the pedicle is broad this partial inversion of the uterus is more likely to be extensive. The use of the sound would in such cases give valuable information.

<sup>1</sup> *Trans. of the Pathological Society*, vol. xvi. p. 210.



## CHAPTER XXXI.

## PROLAPSUS OF THE UTERUS.

GENERAL REMARKS on the Pathology of the Subject—Mechanism by which the Uterus is kept in its Place—The various Conditions present in Cases of Prolapsus—Illustrations of various Conditions and Complications—Mechanism of the Process—Relation to Cystocele, Rectocele, and Flexions—Hypertrophic Elongation of the Cervix and its Varieties—Symptoms and Progress of Prolapsus.

## DIAGNOSIS.

TREATMENT.—Must be adapted to the Peculiarities of the Case—Treatment of Prolapsus from Hypertrophy of the Cervix—Excision of the Part—Other Forms of Prolapsus—Measures directed (1) to the Condition of the Uterus; (2) to the Condition of the Uterine Supports—Artificial Means for Maintaining the Uterus in its proper Place in the Pelvis, by Pessaries, by external Appliances, by Constriction of the Vaginal Aperture, or the Canal itself—Description of various Operative Procedures.

PROLAPSUS, or falling of the womb, is an affection to which women are, in one form or other, exceedingly liable, and it is one which is not unfrequently productive of very much inconvenience and distress. Intimately connected as the uterus is with the adjacent organs, its displacement downwards is almost necessarily attended with more or less displacement of these organs also. Prolapsus of the uterus, then, is rarely a simple affection; and, for this reason, it will be convenient to consider together the various displacements associated more or less frequently with it, viz., prolapsus of the uterus, prolapsus of the bladder (cystocele), prolapsus of the vagina, and prolapsus of the rectum through the vagina (rectocele).

The term 'prolapsus' is in this country generally used to designate all grades of the displacement. In America it appears that 'prolapsus' means falling of the womb within the vagina, while 'procidentia' is used to designate its appearance externally to the vaginal aperture. In this place one term—prolapsus—will be applied to both these conditions.

The anatomical relations and connections of the uterus are of the utmost importance in all that concerns a right understand-

ing of the subject of prolapsus. The uterus is supported by a complex mechanism, the various parts of which are mutually dependent, and a failure or weakening of one leads to derangement of the others. It frequently requires no little attention to ascertain where the 'breakdown,' literally as well as figuratively, first happened; but unless the investigation be successful, we can have no true basis for our curative efforts.

*Natural supports of the uterus.*—In a former chapter, the structures by which the uterus is retained in its place have been described, but principally in reference to the prevention of what have been termed the minor displacements of the uterus (see p. 132). We have now, however, to consider how far these natural supports of the uterus prevent those further and more severe displacements which come properly under the head of prolapsus or procidentia of the organ. The *peritoneum* serves little purpose in restraining the downward movement of the uterus. The *round ligament* has an influence which is exerted for the most part in restraining the movement of the fundus backwards. Still in a case where the uterus had descended a little, it would aid in preventing further descent. The *utero-sacral ligaments* are so placed as directly to prevent falling of the uterus. They are firm, fibrous bands, passing one on each side straight between the cervix uteri and the sacrum. Dr. Farre justly drew attention to the importance of these ligaments. The *broad ligaments*—not, properly speaking, ligaments, being simply the mesentery of the Fallopian tubes—have, in the early stage of prolapsus, little restraining effect as regards descent of the uterus, but they would necessarily assist in checking its further progress downwards. The *utero-vesical ligaments* connect the uterus very closely with the bladder, and, supposing the distended bladder to be fixed, it would be almost impossible for the uterus to descend below its proper level in the pelvis. The bladder, however, is not so fixed. A movement of the whole bladder downwards necessarily carries with it the uterus, and correspondingly the uterus cannot descend without carrying with it that portion of the bladder with which it is connected, viz. the posterior part. Lastly, the *general connections* of the uterus with the adjacent parts, and constituted by a very considerable quantity of blood-vessels and connective tissue, form, as Dr. Savage<sup>1</sup> has shown, a very important additional apparatus for restraining undue mobility of the uterus. Dr. West

<sup>1</sup> *Illustrations of the Surgery of the Female Generative Organs*, 1863. Plate IX.



considers that the canal of the vagina contributes very much to supporting the uterus in proper position. The researches of Mr. D. B. Hart, referred to at p. 133, explain how the vagina prevents prolapsus of the uterus, and the importance of the firm support which the normal perinæum gives to the floor of the vaginal canal.

FIG. 131.



In his eleventh plate,<sup>1</sup> Dr. Savage has delineated experimental observations (*post mortem*) on the ligaments of the uterus and the resistance they offer to descent of the organ. Moderate traction on the uterine cervix by a vulsellum was found to compress the bladder against the pelvis, to straighten and put on the stretch the utero-sacral ligaments, to curve, but not to stretch, the round

<sup>1</sup> *Op. cit.*



ligament. Cutting through the utero-sacral ligaments allowed the uterus to descend still lower, until the os uteri was just outside the vagina: the results were that the bladder was drawn down closely following the uterus, the rectum not disturbed, the broad ligament now for the first time put on the stretch. Dividing the broad ligament allowed of the further descent of the uterus to the extent of an inch; but the sub-peritoneal pelvic cellular tissue, particularly where it surrounded the uterine blood-vessels, and where it was strengthened by additional trabecular filaments, was found to restrain further descent of the organ. Complete prolapsus was produced on the yielding of the pelvic reflexions of the broad ligament. The round ligament was last put on the stretch.

The perinæum is undoubtedly a most important structure in relation to the prevention of complete or partial uterine prolapsus and procidentia. This has been forcibly put forward by Dr. Thomas in his last (1880) edition, and Mr. D. B. Hart's views are in accordance therewith. Dr. Thomas, in his latest edition, gives drawings exhibiting the shape and size of the perinæum to illustrate his views. He regards the perinæum in the normal state as a concavo-convex triangle, anteriorly supporting the inferior wall of the vagina, while its posterior side supports the anterior wall of the rectum. The accompanying drawing (fig. 131) is one published by myself in the 'Mechanical System of Uterine Pathology' two years ago, and the shape and size of the perinæum here shown is closely in conformity with that represented by Dr. Thomas in his lately published work.

The foregoing suggests valuable inferences regarding the controlling powers *quoad* simple descent of the uterus; but it must be recollected in applying these inferences that they suppose a pre-existent normal condition (and I would include shape) of the uterus itself.

In point of fact prolapsus of the uterus is a complex event. It is impossible, moreover, to consider prolapsus apart and separate from the subject of flexions; from an etiological point of view at least. I have already discussed, under the head of 'Flexions,' the mechanism of those changes in the shape of the organ, and the relation of the uterine ligaments to flexions. We have, therefore, now, amongst other things, to discuss the relation between flexions and prolapsus in its various forms and degrees.

There are two principal elements in existence in every case of prolapsus, sometimes separately, sometimes conjointly.

These are—(1) Increased weight or altered shape of the uterus ; (2) impairment or destruction of the supporting structures below the uterus. The foregoing classification will not include, of course, every imaginable case : for instance, hypertrophic growths downwards from the cervix uteri.

The relation between the various causal elements in ordinary cases is most easily illustrated by descriptions of actual cases.

Thus—(a) During a labour the perinæum is torn, the vaginal aperture increased in size ; the floor of the bladder, not so well supported as it should be, comes to occupy a position nearer the ostium vaginæ than usual. Slight exertion increases this descent of the bladder, the uterus follows it, and soon comes to take a position lower in the pelvis than usual.

FIG. 132.<sup>1</sup>



Or (b) concurrently with such enlarged perinæal aperture the patient is the subject of defective involution of the uterus. She moves about too soon after labour, the uterus becomes first a little anteverted, then anteflexed ; and the bladder, less supported than usual below and more pressed upon from above, gives way. The result is, perhaps, confirmed anteflexion and cystocele.

A further stage may be witnessed, after the lapse of many years as a rule, viz. complete descent of the whole uterus external to the vulva.

<sup>1</sup> Fig. 132 represents a case in University College Hospital, æt. 42. The patient had had two children—the last nineteen years ago. The case was cured by operation.

Or (*c*) the patient is unmarried. Ante flexion of the uterus exists. The bladder is slowly pushed downwards, and spite of the uninjured ostium vaginæ it is gradually protruded.

Or (*d*) the patient has shortly after labour acquired a retroflexion of the uterus. The labour has been attended with laceration of the perinæum also. Soon the uterus falls lower in the pelvis, the retroflexion becoming at the same time intensified, and first of all the posterior vaginal wall is protruded at the vaginal aperture (rectocele), then follows the fundus of the uterus. At a later stage of the affection the whole uterus may pass outside the vulva, remaining still, however, retroflexed (see fig. 132).

Or (*e*) the lower part of the uterus becomes elongated, the effect being that the cervix of the uterus finally becomes external to the vulva, bringing with it the bladder more or less completely. These constitute a class by themselves, and will be presently more fully described.

These illustrations might be easily increased in number.

The foregoing illustrations are put forward with the view of showing the various 'first steps,' as they may be termed, towards prolapsus. *Occupation* and *age* are two elements of considerable importance in altering the character of the prolapsus in different cases. An occupation involving much standing is certainly provocative of its occurrence in a very marked degree. And as age advances, if the quantity of fat in the body diminishes, the uterus is more apt to descend than it was before.

Violent strains are evidently capable of producing prolapsus instantaneously, even when the parts are previously healthy and parturition has not occurred; but more ordinarily the action of strains is more indirect, the first effect being to produce a flexion, which flexion is the starting-point, ending finally in prolapsus. Flexions bring about prolapsus very frequently in the following manner: The process of defæcation is impeded by the flexion; the patient finds it necessary to strain very much to procure an evacuation; the whole pelvic contents are thus pressed downwards; the supports of the uterus stretched; the flexion intensified; and, by-and-by, the uterus itself escapes from the vulva.

Cystocele is observed, as already hinted at, chiefly in association with a ruptured perinæum and an ante flexed uterus, but it may occur apart from such injury of perinæum, and in women who have had no children. Here the tumour which forms at and protrudes from the vulva is small and readily reduced. Cystocele is also witnessed when the cervix uteri descends externally. This



remark applies to that part of the cervix which is connected so intimately with the bladder, and when this part of the cervix descends the bladder must come with it. When the whole uterus is outside the vulva, there must therefore be a considerable portion of the bladder protruded externally. But when the part of the cervix *below* the vaginal reflexion is, as sometimes happens, alone hypertrophied, and projects downwards, perhaps in a conical form, through the vulva, there is, under these circumstances, no necessity for a simultaneous descent of the bladder, and such cases are not usually complicated with cystocele.

FIG. 133.<sup>1</sup>


Cystocele, though ordinarily not attended with more than discomfort when slight in degree, is liable to become a condition of torture to the patient. Thus a married woman just over forty, who had never had children, presented herself for treatment at University College Hospital. There was a tumour the size of one end of a hen's egg protruding, and composed of the bladder. It

<sup>1</sup> Fig. 133 represents antelexion associated with cystocele. The case is the one described in the text, where there was excessive hyperæsthesia of the prolapsed, thickened, and hypertrophied bladder.

was sensitive to such a degree that the slightest touch gave excruciating pain. The tumour could not be kept up, intercourse had not been possible for years, and various means had been tried to relieve her; amongst other things, an operation consisting of removal of an area of vaginal mucous membrane had been unavailingly performed. There I found the affection dependent on long-standing anteflexion of the uterus. The case was finally and completely cured by very considerably narrowing the vaginal aperture, but means were at the same time taken to prevent the descent of the fundus uteri anteriorly, which had evidently been the original cause of the mischief.

FIG. 134.<sup>1</sup>

Rectocele, and its relations to prolapsus, constitutes an important subject. Rectocele, which is a simple projection of a loop of the rectum through a defective vaginal outlet, generally arises from laceration of the perinæum. It by no means always occurs in cases of lacerated perinæum, and it is in fact rather rare by itself. It varies in degree, and I have generally seen it associated with retroflexion of the uterus, though it is not by any means the

<sup>1</sup> Fig. 134 represents the condition described in the text, the subject of which was a lady, æt. 42, who had been suffering some years: the uterus was affected with chronic retroflexion. The rectum is represented in the condition it always assumed in the act of straining.

fact that cases of retroflexion are generally complicated with rectocle. In some instances the affection is one of the most painful character possible; the straining at stool required to evacuate the rectum is sometimes severe, and, when long continued, I have found it associated with an ulcer of the rectum, bleeding on the slightest irritation, and painful when touched to an extreme degree. The nature of these particular cases is liable to be misunderstood, but the explanation seems obvious enough. It is that the bend in the lower part of the rectum prevents the passage of

FIG. 135.<sup>1</sup>


the fæces, which are impelled, day after day and month after month, with great effort, against that part of the rectum where the bend is, the result being to produce the ulceration, the bleeding, and other grave symptoms, sometimes to such a degree as to compel patients the subjects of them to declare that life is not

<sup>1</sup> Fig. 135 represents a case of supra-vaginal hypertrophy of the cervix, the subject of which was a married woman, æt. 47. She had suffered from prolapsus for two years, and had been obliged to wear a boxwood pessary  $3\frac{3}{4}$  inches in diameter to keep the uterus up. In Huguier's memoir similar cases will be found delineated.

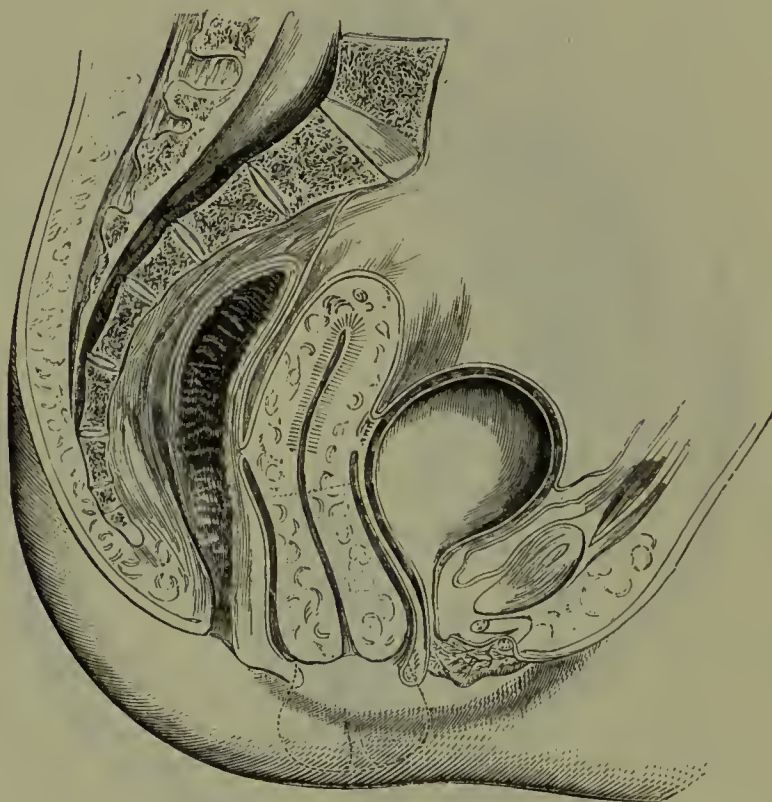


worth having at such a price. In some cases, on the contrary, the inconvenience sustained from rectocele is less marked.

Hypertrophy of the uterus, and its connection with prolapsus, is a subject requiring a discussion by itself. Huguier,<sup>1</sup> in 1859, described and figured several cases designated as cases of hypertrophic elongation of the cervix uteri; and his researches have since led to a more accurate discrimination of the varying conditions met with in prolapsus.

Following his classification, we have cases of (1) Hypertrophic elongation of the part of the cervix above the vaginal reflection

FIG. 136.



(see fig. 135). (2) Cases of hypertrophic elongation of the infra-vaginal portion of the cervix. In both these cases the prolapsus which may occur is considerable; but in the first case the bladder is of necessity prolapsed together with the tumour, while in the second (see fig. 136) the bladder is not necessarily disturbed.

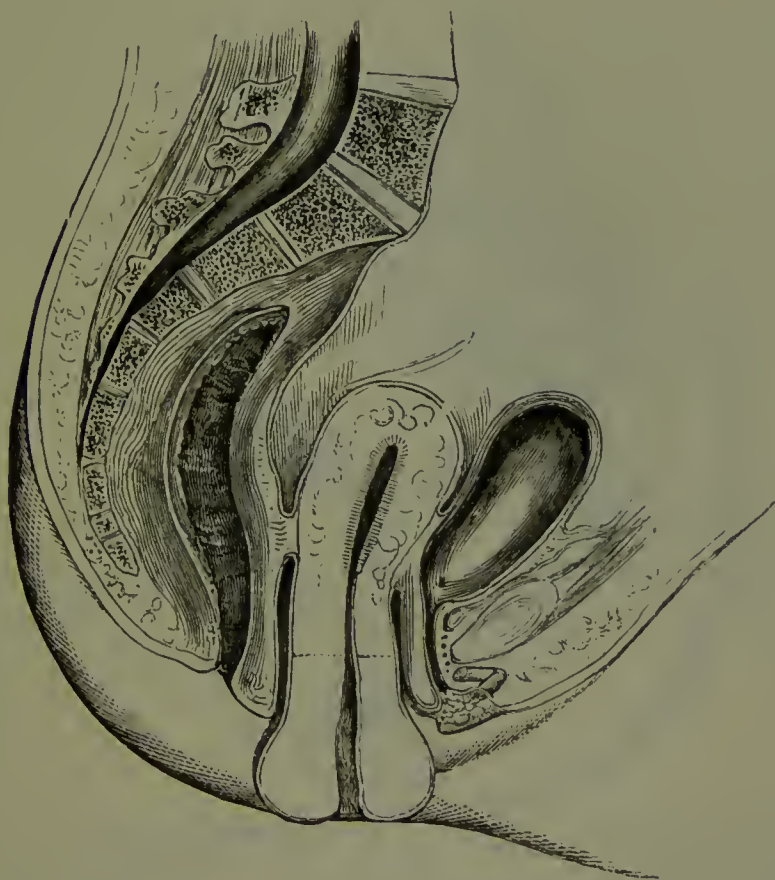
In both classes of cases the fundus uteri may remain in its proper position in the pelvis, and it is obvious that, if there be still a considerable prolapsus, the uterine canal must be enormously elongated. So in point of fact it is, and the distance, as measured by the sound, may be found to be as much as four

<sup>1</sup> *Mém. de l'Académ. Imp. de Méd.* tom. xxiii.

inches from the os to the fundus uteri; in extreme cases more than this.

The cases of supra-vaginal hypertrophy are met with chiefly in laundresses and cooks, whose occupations involve long standing. The mechanism of the occurrence of this peculiar elongation of the cervix is curious. It would appear that the elongation is due to the dragging of the vaginal portion on the supra-vaginal portion of the cervix, in consequence of which the organ becomes stretched. The bladder very probably descends first in these

FIG. 137.



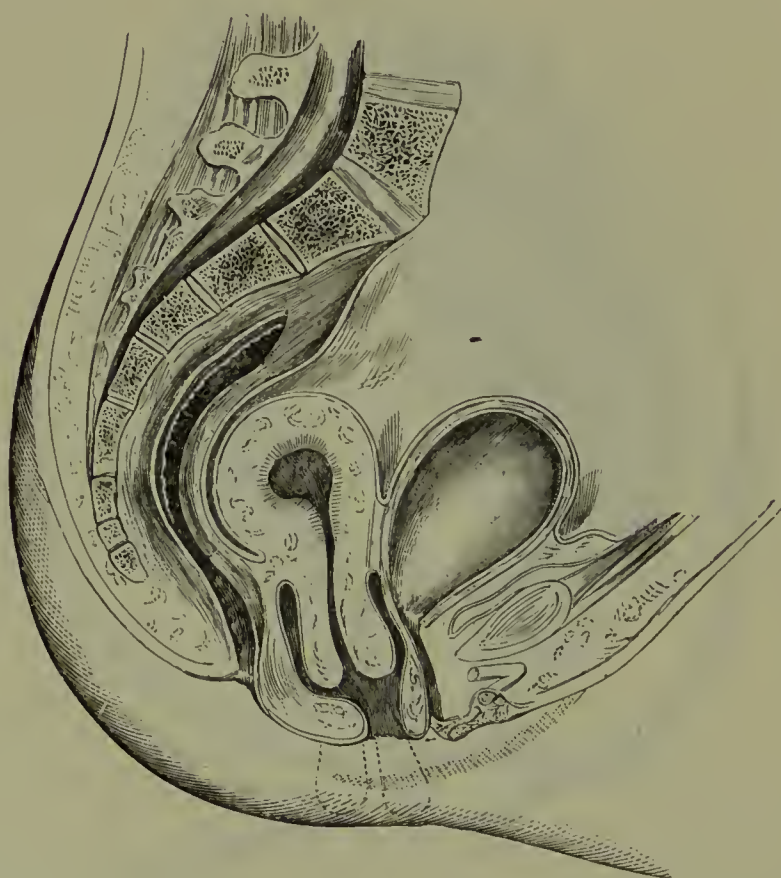
cases, either because the perinæum is a little deficient, or because the fundus is inclined forwards, and the effect of the descent of the bladder is that the cervix, which is intimately adherent to the bladder, descends with it, the result being elongation of the cervix. This mechanism implies a fixation of the upper part of the uterus. In some cases the weight of the vaginal part of the cervix alone appears enough to determine this hypertrophic elongation, when the patient has been subjected to the influences of prolonged standing exertion.

We meet with all gradations of the affection. The accom-

panying figures represent actual cases. In fig. 136 we have simple hypertrophic elongation of the infra-vaginal portion in a young woman. In fig. 137 is shown elongation of the infra-vaginal portion from a woman who had had children. In fig. 138 we have hypertrophic elongation of the same portion in association with retroflexion, a rare combination.

I have seen cases in which the external tumour constituted by the prolapsed organs has been as large as the fetal head. Under these circumstances there is great thickening of the cellular tissue around the uterus. The organ itself is greatly thickened and

FIG. 138.



hypertrophied laterally as well as longitudinally, and in some cases, together with the bladder and uterus, certain coils of the intestine pass downwards and help to enlarge the tumour.

Huguier's statements as to the frequency of hypertrophic elongation of the cervix are not borne out by my own experience. In other respects, as regards the collateral conditions present in these particular cases Huguier's account has seemed to be exact.

The foregoing represent, regarding prolapsus generally, the generalisations I have been led to adopt. The very great impor-



tance of flexions, as in very many instances being the starting-point of the displacement, is a matter which it seems desirable to make prominent.

Various secondary effects result from prolapsus. Thus, in cases of cystocele the bladder is evacuated with difficulty, retention of a small portion of urine is apt to occur, and chronic cystitis may be added as a complication. The uterus itself, when prolapsed, often becomes ulcerated and excoriated, broad patches, the size of the palm of the hand, raw and bleeding on the slightest touch, are observed round the os uteri, these ulcerations being produced by the friction of the tumour against the thighs. The tumour itself, from long exposure, becomes sometimes hard and leathery to the touch, the inverted vaginal mucous membrane losing the characters of a mucous membrane and looking more like the adjacent skin. The discomforts connected with defecation are great, and, as already stated, in the case of rectocele they may themselves become actually torturing. Needless to say, the general discomfort induced by the presence of a tumour at the vulva, changing in size from time to time, impeding locomotion, distressing the patient by giving rise to profuse leucorrhœa, occasional losses of blood, and in many other ways—all these constitute grave ailments.

Lastly, in some cases, the tumour may be so large and so much swollen that it becomes actually strangulated and mortification sets in; again, inflammatory adhesions may occur to such a degree round the pedicle of the tumour that its return is found difficult, and in a few cases impossible.

#### DIAGNOSIS.

All cases of prolapsus uteri have this in common, that the os uteri is the lowest point. In other respects, the variations observed are exceedingly great. In the most simple form of the affection, the cervix uteri is felt rather lower than usual, and the vagina proportionately shortened. In its extreme degree, on the other hand, the uterus descends so low down as to be almost altogether outside the ostium vaginæ; and in this case the vaginal canal is completely inverted, the bladder is dragged externally also, and the rectum may be displaced in like manner. Thus, in a bad case of prolapsus uteri, we may have combined, descent of the uterus with prolapsus of the bladder and rectum (vaginal cystocele and rectocele).

If we find a conical, firm tumour, smooth on the surface, projecting downwards in the vagina or beyond it, and the os uteri situated at, or close to, its extremity, the case is one of *hypertrophy and elongation of the vaginal portion of the cervix uteri*. With such a condition there is usually found to be no considerable amount of prolapsus of the vagina, and the finger encounters the *cul-de-sac* of the vagina in about its usual position (see *ante*, figs. 136 and 137). The shape of the tumour is generally conical, but it may be larger at the extremity than at the base; one portion of the lip may be larger than another, in which case the opening appears to be not quite at the extremity of the growth, and the os itself may be fissured and ulcerated according to the degree of irritation to which the part is exposed. The general shape, the firmness of the tumour, and the position of the os uteri, sufficiently distinguish it from other tumours occupying the vagina.

*Hypertrophy of the supra-vaginal part of the cervix.*—In this class of cases there is prolapsus of the vagina, and the finger cannot consequently be introduced as far as usual. The use of the sound will render it evident at once whether the descent of the os uteri, bringing with it the vagina, is due to descent of the whole uterus, or to hypertrophy of the lower part of this organ—the cervix. The attachment of the cervical part of the uterus to the bladder in front is such, that when the cervix is projected downwards the bladder comes with it; the extent of the prolapsus of the bladder is, as a rule, dependent on the degree of the former. Fig. 139 (from Dr. Farre) represents such a condition. (See also *ante*, fig. 135.) In like manner, the rectum is liable, but in a less degree, to be prolapsed with the lower part of the uterus; and the result is that in cases of extensive prolapsus of the cervix, whether with or without hypertrophy of the part, there is a soft tumour in front—the bladder—and a smaller one behind—the rectum—between which two the os uteri is situated. A combined examination of the rectum by the finger and of the bladder by means of the sound, will determine whether or not the fundus uteri is in its proper position; the use of the uterine sound gives information of a like character.

*True prolapsus of the whole uterus* may be found associated with ascites, ovarian tumours, or both, or with relaxation of the vaginal structures, consequent on frequent child-bearing.

Prolapsus, complete or produced by hypertrophy of the supra-vaginal portion of the cervix, could hardly be mistaken for polypus, inversion of the uterus, or large tumours growing from the os

uteri, if attention were paid to the position of the os in reference to the body of the tumour. Cases of hypertrophy of the vaginal portion alone might possibly be confounded with a polypus projecting into the vagina from the interior of the uterus, in those instances in which the os uteri is distorted, partially effaced, or so altered as not to be recognised as such by a casual observer. I have known an instance in which a lady was treated for prolapsus and made to wear a pessary for several months, the tumour being a well-marked specimen of polypus, attached by a slender pedicle to the interior of the cervix uteri.

*Prolapsus combined with pregnancy.*—In some rare cases

FIG. 139.



the uterus, although prolapsed, becomes impregnated. It would be a serious mistake to use the sound in such a case, and to induce abortion. It is sufficient here to give this caution on the subject.

#### TREATMENT OF THE VARIOUS FORMS OF PROLAPSUS.

The various forms of prolapsus of the uterus, vagina, &c., having a different mechanism in different cases, the treatment necessarily varies. Success in treatment cannot be obtained until due importance is attached to the various elements concerned in the production of the prolapsus.

We may consider, in the first place, the treatment of those



cases in which there is *hypertrophy of the cervix*—the prolapsus being for the most part due to, or constituted by, this hypertrophy.

(a) *Cases of hypertrophy of the vaginal portion alone.*—It appears that in many of these cases the hypertrophy of the cervix may be very greatly diminished by appropriate treatment—viz., by rest, by frequent hot douches, and by the use of astringent applications. Further, that in a certain number of these cases the hypertrophy at the os uteri is due to laceration of the cervix and consequent hypertrophy and eversion. Cases of the latter description should of course be dealt with by the operation described in a former chapter.

The great length of the cervix sometimes present appears to be capable of undergoing great reduction by appropriate measures, particularly rest and absence of traction on the cervix. Still cases remain in which after proper treatment has been employed the only real cure consists in amputation of the enlarged cervix. The removal may be effected by the knife or curved scissors, by the wire or chain écraseur, by the galvano-caustic apparatus, or by Paquelin's thermo-cautery. The knife is the more expeditious and manageable; but the hæmorrhage from the cut surface is often very troublesome. An objection to the écraseur is that, unless the chain fits closely into the apex of the instrument, there is a liability of drawing into the instrument tissues which ought to be left uninjured. Hence, if the chain écraseur be used, the chain should be applied, not close to the summit of the vagina, but a little below this. Dr. Thomas describes in his last edition a pair of forceps with long teeth, by means of which the cervix is seized prior to the amputation, and the slipping upwards during severance by the wire thus prevented. The galvano-caustic apparatus has, like the écraseur, the advantage of preventing hæmorrhage. On the whole, the course to be recommended is the use of the knife, or curved scissors, if the neck of the growth be very thick—the cautery being ready for use to arrest hæmorrhage, and the use of the chain or wire-rope écraseur (see fig. 140), or the thermo-cautery when the neck of the tumour is smaller. Lint soaked in tincture of sesquichloride of iron on the cut surface, and carefully plugging the vagina by means of the speculum, as in ordinary cases of uterine hæmorrhage, will be effectual in arresting the bleeding in many cases. In any case, prior to performing the operation, the tumour should be gently pulled down as far as possible, to facilitate the necessary manipulations. It is a wise

precaution to transfix the cervix *above* the line of the contemplated incision, and to pass a stout piece of string through it before performing the excision, for it often happens that the uterus retracts, and bleeding is thereby less under control.

Dr. Marion Sims has practised a modification of this operation. This consists in covering the stump, as it may be termed, of the amputated part, by mucous membrane; the anterior half being covered with mucous membrane previously dissected off, and being made to lap over, as in the flap operation in ordinary amputation; and the posterior half being covered by a flap similarly made from the under surface of the cervix. When the bleeding is trifling and readily checked, this procedure renders the operation more neat and perfect. If styptics have to be used, the covering of the stump with mucous membrane will be useless, as no union can occur.

(b) *Cases of hypertrophy of the supra-vaginal portion of the cervix uteri.*—Cases of hypertrophic elongation of the cervix are now not uncommonly treated after the manner proposed by Huguier—viz. by excision; and this plan I have satisfactorily carried out in some few instances.

When the hypertrophy is very great, this is the only satisfactory treatment; but before deciding on its necessity, the patient should be kept in bed for a week or two, in order that it may be ascertained how far the affection is reduced by this rest. It is the fact, as pointed out by Kiwisch, that rest materially reduces the bulk of the cervix under these circumstances. Rest and prolonged use of cold effusions would do still more. But when the disease is of long standing, and the uterine canal exceeding a total length of four inches, such palliative measures are inadequate. And the poorer classes, amongst whom the disorder is most marked, can ill afford the prolonged rest and attention requisite. Two plans of a palliative nature are open to us—(1) The use of pessaries, and (2) the closure of the vaginal orifice to such an extent as to prevent the escape of the cervix uteri, after a plan to be presently described. Each of these methods of treatment has peculiar advantages, according to the nature of the case. In many instances they prove sufficient; but in some few cases, as might be surmised, they are either inapplicable, or, in the long run, unsatisfactory.

The operation of Huguier is accomplished as follows: An incision is made behind the os uteri through the vaginal wall, of a semicircular form, and directed towards the centre of the cervix.

Dissection is now made upwards, in order to expose the hypertrophied cervix, and separate it from its connections posteriorly—great care being necessary to avoid the reflection of peritoneum there situated. A corresponding incision and dissection is made now in front; here, however, great care is necessary to avoid injuring the bladder. As much of the cervix having been exposed as is considered advisable, it is removed by the knife. Huguier at first employed the knife in removing the cervix,

FIG. 140.<sup>1</sup>

but subsequently the écraseur, finding the hæmorrhage troublesome when the knife is used. Such is an outline of the operation in question. The result is that a conical piece of tissue is removed, including the os uteri, the vaginal, and a portion of the supra-vaginal part of the cervix. In the original memoir before referred to, Huguier states that he had performed the operation in fourteen cases. In only one of such cases a fatal result—not due, however, to the operation—followed.

The operation is, judging from my own experience, a sound one, and in some instances offers the shortest road to the cure of the patient. The dissection and exposure of the cervix is the part attended with most difficulty, and it must be done with care. The bladder may extend to within half an inch of the os uteri, in which case it is evident that great caution must be required to avoid wounding it; again, the peritoneal reflection behind must be sedulously preserved intact. By keeping close to the cervical hard tissue these objects are secured. A sound in the bladder shows the position of that viscus, and acts as a good guide during the operation. For the

dissection itself, scissors should be used; the knife occasions troublesome bleeding. I believe that a deep dissection—beyond an inch and a half, or at most two inches—is rarely required; for if the hypertrophied and, usually, thickened cervix be excised to this extent, the rest, which necessarily follows the operation, will suffice to complete the cure. Retraction of the severed cervix must be guarded against by previously transfixing the uterus above

<sup>1</sup> Écraseur to be used with annealed steel wire. (Meyer and Meltzer.)



that point. The edges of the mucous membrane may be brought over the stump, and the opposite sides secured by sutures so as to cover it, after Dr. Sims's plan, if it be preferred.

Of the various forms of the *écraseur*, the steel wire-rope *écraseur* is more useful in amputating the cervix in such cases. In Messrs. Meyer and Meltzer's instrument (see fig. 140) the wire and the slit fit accurately, and there is less liability to draw in extraneous tissues, while the power of the instrument is exceedingly great.

*Prolapsus without elongation of the cervix.*—These include the more ordinary cases of prolapsus. In dealing with this class of cases, the indications are almost always various; the treatment must have regard both to the primary cause and the secondary effects. (1) The condition of *the uterus itself*, and (2) the condition of *its supports*, have to be considered, and appropriate measures devised for rectifying defects and disorders.

1. *The condition of the uterus.*—In most cases of prolapsus the starting-point has been a defective or altered condition of the uterus, which would have proved perfectly and completely amenable to treatment. Apart from those special cases of hypertrophic elongation of the cervix which have been already dealt with, the condition of the uterus which most frequently calls for therapeutic measures in cases of prolapsus, is undue size and fulness of the organ, very frequently indeed associated with long-standing flexion and other troublesome alteration in its shape. The treatment required in cases where there is flexion, so far at least as the uterus itself is concerned, has been discussed under the head of 'Flexions,' and it need not be here repeated. It must not be forgotten, however, that cases of prolapsus, really due primarily to flexion, cease to present that element in a recognisable form when the affection has lasted many years. All we see then is the extremely advanced prolapsus; the uterus itself is by that time otherwise changed.

Among the general measures always required in these cases, rest, very careful attention to the bowels so as to avoid necessity for straining, injections, and a careful dietary, are very important.

2. *The condition of the uterine supports.*—The methods of treatment which have formerly been had recourse to for preventing or curing prolapsus were based on the one idea of keeping the tumour from escaping at the vaginal aperture. Bandages, external pads, boxwood or disc-shaped pessaries applied internally—

these were the principal measures of 'supporting' the uterus and supplying defects in the condition of the uterine supports. Next came improvements in the shape of operations for constricting the canal of the vagina, and thus restoring the lost support in a more natural manner. But there is yet room for improvement, and that improvement is only to be attained by a careful attention to the restoration not simply of the *outlet* of the vagina, but the position of the uterus in the pelvis. In other words, it is not sufficient to simply shut up the uterus in the vagina by means of a perinæal operation, for most assuredly, if the uterus be in a chronic flexed state, it will continue to excite expulsive efforts, and the restored perinæum will by-and-by give way. Even in single women who have never had children, and when the perinæum has never been dilated or destroyed by a foetal head, very extreme degrees of prolapsus are sometimes witnessed.

Supposing the uterus to have been reduced by treatment to its proper size and shape, we have next to consider *how to maintain it in its proper place in the pelvis*. It must be quite obvious that unless this indication is complied with, the evil is likely to recur. It is in this direction that improvements in the treatment of prolapsus must be made. The cervical part of the uterus should occupy a position in the pelvis which is as nearly as possible its centre. The mechanism applied and the operations devised must have regard to this important circumstance.

Instead, therefore, of endeavouring simply to keep the uterus within the vagina, attempts should be made to maintain it in position at the top of this canal, which is its proper position. Admitting that this perfection of treatment is not possible in all cases, it is nevertheless practicable in most instances.

The principle of treatment which fulfils this indication is to render the vaginal canal rigid, thereby giving support to the lower part of the uterus, and to adopt such other measures of a subsidiary character as may maintain the vaginal canal in this rigid condition. In many cases this rigidity of the canal can be supplied by means of a pessary which, adapted as regards its size to the requirements of the patient, becomes practically an artificial vaginal stem to the uterus; and in certain other cases, where the vaginal aperture has become too large to admit of the application of such an instrument, by performing an operation on the perinæum, or by constricting the canal itself for some little distance

from the aperture, and in this way securing a basis for the support of the vaginal stem—viz. the instrument.

Apply these principles to the consideration of actual cases. Cases of slight cystocele associated with ante flexion may be generally cured by the wearing of a well-adjusted ‘cradle’ pessary as described in the treatment of ante flexion; but if the cystocele be of long standing, a constriction of the vaginal aperture by operation is necessary, the instrument being worn subsequently. An air-ball pessary is a palliative measure in some of these cases, where the cradle is inconvenient, or difficult to adjust, and where the perinæal aperture is not much increased in size. In the case delineated in fig. 133 no treatment short of a considerable narrowing of the vaginal aperture was sufficient, the prolapsed portion of bladder being hypertrophied and much thickened.

In cases where the prolapsus is dependent simply on retro flexion of the uterus without much laceration of the perinæum, the Hodge pessary is a most admirable instrument when properly adjusted. It very precisely carries out the indications above alluded to, maintaining the vagina in its proper position, and, at the same time, and often quite efficiently, preventing the uterus from resuming its retroflexed position. Within certain limits it acts very well, but attention must be paid to the following points. As stated in the chapters on ‘Flexions,’ if the flexion be of long standing the pessary alone may fail to cure the distortion, other measures being requisite; but, once cured, the pessary will prevent its recurrence, and, moreover, it will, if there be sufficient perinæal support below, prevent prolapsus occurring. The instrument must be adapted to the size of the vagina. A pessary made from a ring three inches or three and a quarter inches in diameter, having the shape shown at page 231, generally answers the purpose in such cases as those contemplated; it must sometimes be made broader below than above. The copper-wire indiarubber-covered rings which I employ lend themselves admirably to the necessary process of fitting, for nothing can be a greater mistake than to suppose that one instrument will fit all cases. The instrument must be adjusted to the case, and, when properly fitted, may be worn for months without inconvenience. In some cases the watch-spring indiarubber-covered round pessary answers very well; but only when the perinæum has been properly repaired.

If there be rectocele, whether associated with retroflexion or not, the case generally requires an operation to restore the injured perinæum. Subsequently, the uterus often requires to be sus-



tained in its position by a pessary, as above directed for retroflexion. The retrocele may be slight in degree, the tumour small, but instruments are generally useless in such cases, inasmuch as the prolapsed bowel is so near the vaginal aperture. The discomfort attending these cases of rectocele is sometimes relieved by giving very small (teaspoonful) doses of castor-oil every morning.

We next come to those cases when the mass which is protruded is more considerable in size, and where the vaginal aperture is very large, either because it has been very much torn in labour originally, or because the tumour has become larger and larger in process of time. When the whole mass prolapsed does not exceed the size of a hen's egg, we may hope, under favourable circumstances, to satisfactorily treat the case, without an operation, by the use of instruments. Sometimes we are foiled even then, for what appears to be a tolerably good perinæum may not give sufficient basis for maintaining a suitable pessary in its place. When the mass exceeds in bulk the size of an egg, a real cure is rarely obtained without an operation.

First of all we may speak of palliative measures, for even in the worst cases some patients reject operative measures, and in some the age of the patient or other circumstances put an operation on one side.

The mere *reduction of the tumour* is sometimes very difficult, when the parts have been some weeks prolapsed, and the neck thickened by inflammation. To effect this reduction the urine may be removed by the catheter, the patient placed in a favourable position, and the pedicle or neck of the tumour well covered with oil. Seizing the tumour between the two hands it is then gently compressed from side to side, and pressed upwards, the attempt being made in such a manner that the part *last* prolapsed shall be first reduced. Attempts made otherwise and by simply pushing the mass in an upward direction may altogether fail, but the plan above directed I have always found successful. Dr. McClintock suggested strapping the tumour in order to reduce its bulk. I have never found this necessary. The ulcerations or abrasions of surface seen in such cases readily heal when the tumour is reduced.

There are no doubt many cases in which the uterus is much hypertrophied and has become prolapsed with or without considerable increase in the size of the cervix particularly, and which at first sight may seem cases difficult to treat without some opera-

tive procedure, but it will be found that by a continuous system of rest, irrigations of the uterus, use of astringents, etc., the bulk of the organ becomes greatly reduced, and the case loses its formidable characters. Dr. Emmet in the last edition of his valuable work tells an amusing story illustrative of this part of the subject. An eccentric but shrewd physician of the Currituck district, after having been shown Dr. Emmet's cases and practice in cases of prolapsus, told him he could cure any case in ten days. His practice was among the negroes. 'His plan was to swing the woman in a sling from a beam, in the knee-and-chest position. This was maintained for ten days, during which time the vagina was kept filled with a strong decoction of oak bark, which was changed every day by means of a syringe. The sling was padded, the woman slept all the time, and was not disturbed except to receive her food or answer a call of nature.' 'The principles of the treatment were,' Dr. Emmet states, 'correct.'

*Internal supports.*—In a case where the uterus has been in a state of retroflexion a pessary must be adapted suited to the case (see chapter on 'Retroflexion'). It generally happens that in the cases coming properly under consideration in this place an ovoid ring answers extremely well, but the Albert Smith type of Hodge pessary is necessary in many instances. The quite round, rather thickly covered watch-spring pessary answers well in some cases. In a few the disc-shaped ebonite pessary is found suitable; various sizes are required. In some cases I have found a rather large cradle pessary most serviceable, particularly in cases where the uterus has been previously in a state of anteversion. The use of these supports is, in bad cases, not generally satisfactory, unless the perinæum has been effectually restored by an operative procedure.

Various forms of air pessaries, globular as well as disc-shaped, are kept by the instrument makers, but they are not satisfactory for prolonged treatment, while open of course to objections already mentioned.

Zwank's pessary has been in rather general use. It is an unscientific instrument, inasmuch as it distends the vagina very greatly from side to side, and perpetuates the prolapsus by dragging the uterus still lower towards the vulva; the only merit it possesses is, that it prevents the escape of the mass from the vulva.

*External supports.*—Under this head are included mechanical

contrivances for preventing prolapsus, having their fixed point from without. The perinæal pad and bandage consists of an elastic, or non-elastic, abdominal belt, which is the fixed point, and a perinæal pad, which is of a flattened egg shape, and is so adjusted by a strap fixed anteriorly and posteriorly to the abdominal bandage as to press upon the edge of the perinæum. The pad is sometimes made elastic by means of an indiarubber air ball. This apparatus supplies in some degree the deficiency of the perinæum, and prevents in some cases of prolapsus the expulsion of the mass outside the vulva. Here of course its function ceases. In some cases straps passed over the shoulders are the fixed points, being used instead of, or as an assistance to, the abdominal bandage.

Another principle of treatment consists in the use of a rigid stem of metal or other material, which, terminating above in the form of a small ball, or cup-shaped, is maintained in the vagina by means of a perinæal strap, attached to an abdominal bandage. External frameworks of metal fixed anteriorly to the abdominal bandage, or to a kind of hernia belt, may be made the basis of support to such intra-vaginal stems. It is obvious that from without it is possible in this manner to adjust an internal support very firmly. The inconvenience attached to the wearing of such external solid mechanical supports is a great objection to them, but if external supports are to be made really efficient—and to be efficient they must be capable of maintaining the vagina in its proper position—some such principle of construction as this is really required. Obviously, the alternative is the performance of an operation which will radically cure.

*Radical operations.*—The success with which the very worst forms of prolapsus can now be treated by operation will render this method of dealing with them more and more popular, especially if after such operations care be taken to deal with the uterus, and promote its restoration to shape and position in the pelvis. The principle of the operation is to *constrict the vaginal canal*. Dr. Marshall Hall seems to have been the first to suggest it, and Mr. Heming the first to have practised it. The part of the vaginal canal so dealt with was at first the lower aperture or entrance of the vagina, and this operation received later on important developments at the hands of Mr. Baker Brown, Dr. Savage, and others. A further step consists in the constriction of the vaginal canal higher up, *as well as* the vaginal aperture.

With respect to the merits of these various operations, much



will depend on the case itself. A simple perineal operation is sometimes quite sufficient when the vagina has not been much distended, but when the protruded mass is considerable, the vagina is necessarily much stretched, and simply to close the aperture of the vagina is attended with no permanent benefit. Many cases require a sort of combined operation, a restoration of the perinæum, and a narrowing of the canal itself for some little distance upwards.

The *perineal operation*.—It may be well in this place to consider the treatment of ruptured perinæum in its entirety, including recent as well as chronic cases.

When the perinæum is torn in the process of labour, the rent extends to a variable depth backwards, sometimes destroying the whole sphincter of the rectum, in other cases not affecting the sphincter recti at all, but subtracting little or much from the perinæum. If the rent looked at immediately after the labour is over exceeds an inch in depth, it may be said to be a case for operation. By ‘immediately’ is meant in this place a few minutes after the birth of the child, at the time the parts are customarily inspected. Some days later a rent one inch in depth originally will have become diminished—even in cases when no union has occurred—very materially; and what has appeared a rather large rent perhaps is then found to be comparatively trifling. When the rent is at all considerable, however, the operation is required.

The *primary operation* should be performed within one hour from the birth, while the surfaces are still raw and bleeding. The surfaces are generally very well secured in apposition by rather deeply applied silver-wire sutures: two or more may be required. I have found them most easily introduced by means of a needle two and a half inches long, and bent into a completely semi-circular shape. Such a needle can be employed with the patient lying on her side in the ordinary obstetric position. The sutures should go to the bottom of the wound, and they should come out on the surface some way from the edges. So performed, the operation is very simple. The nurse carefully and frequently dries the parts with soft lint, not using water, the knees are tied together, the catheter is employed, the bowels not allowed to act for at least three days, and on the fourth or fifth day the sutures can be removed. The result is generally very satisfactory. It is quite true that by rest and position union will sometimes occur without use of sutures, but this result cannot be

depended upon, and the primary operation is so little troublesome or painful to the patient, that unless the rent is very slight, it is best so to perform it. It is of very little use inserting sutures when the labour has been over some hours; union rarely then occurs.

The *secondary operation* (A) should not be performed until at least one month after the labour. Careful inspection of the parts is required to determine on the line of procedure. Good health, avoidance of erysipelatous influences, a dry, well-ventilated room, are essentials to success. The bowels should be previously very carefully evacuated. Dr. Thomas very properly insists on the necessity for use of aperient medicine for some days previous to the operation, in order to dislodge any possible accumulations, but

FIG. 141.<sup>1</sup>

FIG. 142.



it is best, I consider, to use injections and not medicine during the two days preceding the operation. In long-standing cases of prolapsus, complete rest in bed for some days is quite requisite, and all ulcerative processes should have ceased. The hairs near the part to be operated on are first removed by a razor, the patient having been placed in the lithotomy position at the edge of the table. A semilunar incision is first made corresponding to the edge of the perinæum, and indicating the outer edge of the surfaces to be bared. A corresponding internal semilunar incision is next made within, as shown in the annexed figure (fig. 141); and the internal and external lines of incision connected by two horizontal cuts. The strip of mucous membrane enclosed is then removed by the scalpel or scissors. Some operators prefer the

<sup>1</sup> Fig. 141 shows the shape of the raw surface in ordinary cases. The dotted lines indicate the position of the hidden deep wire sutures.

scissors, as the bleeding is less. The extent of this surface so removed varies in different cases. It should always be deeper in the middle line (the floor of the vagina) than at the two extremities of the horns of the crescent; from one inch to an inch and a half in width is required in the middle line. The opposite sides, thus rendered raw, are next brought together by deeply inserted sutures. The quill suture, or modifications of it, were formerly employed. I have used for some time past beads made of ebonite, and of such a form as to allow of the wire used being easily attached to them (see fig. 142). They are little balls with a projecting neck, and perforated through the middle. They possess the great advantage of permitting an easy regulation of the tightness of the suture, and allow of a better circulation in the soft tissues implicated. The quill suture is apt to give rise to great swelling and even sloughing of the new perinæum; but I have never seen this happen with the bead suture. The deep sutures, two or three in number, are inserted at a distance of about three-quarters of an inch from the edge, and the needle carrying the suture should so pass *as not to be visible until it emerges on the skin on the opposite side*. One of the sutures at least should pass as deeply as this. When the deep sutures are inserted, they should be temporarily tightened in order that it may be ascertained by the touch internally that the internal edges are really in apposition, otherwise gaping results, and union will not occur. Failing this, the deeper ones must be re-inserted. The finger should be inserted in the rectum in order to be sure that the suture does not enter this canal. Rather stout silver wire is, I consider, preferable, and the needle used must be a perforated one, having a nearly semicircular large sweep, and a large firm handle. It is rather more difficult to pass such a needle through, but the purchase thus obtained is more perfect. The ends of the wire are readily secured to the perforated beads. When the deep sutures have been fixed, two or three superficial ones are generally requisite, for which a smaller wire serves best. The knees are then tied together, and the patient removed to bed. In my opinion the best after-treatment of the wound is to use no water, but simply a piece of dry lint for the purpose of drying the surface, which latter should be done frequently. Position on the side, but the side may be changed from time to time. The deep sutures to be loosened or removed at the end of three days, the superficial ones rather later. As regards the material for the sutures, silk or catgut are preferred by some operators to silver



wire. Dr. Granville Bantock prefers silkworm gut, and he employs no beads or other appliances externally, simply knotting the sutures in the middle line. Dr. Chambers uses wire, fastening the wire in the middle line by means of Aveling's coil and shot.

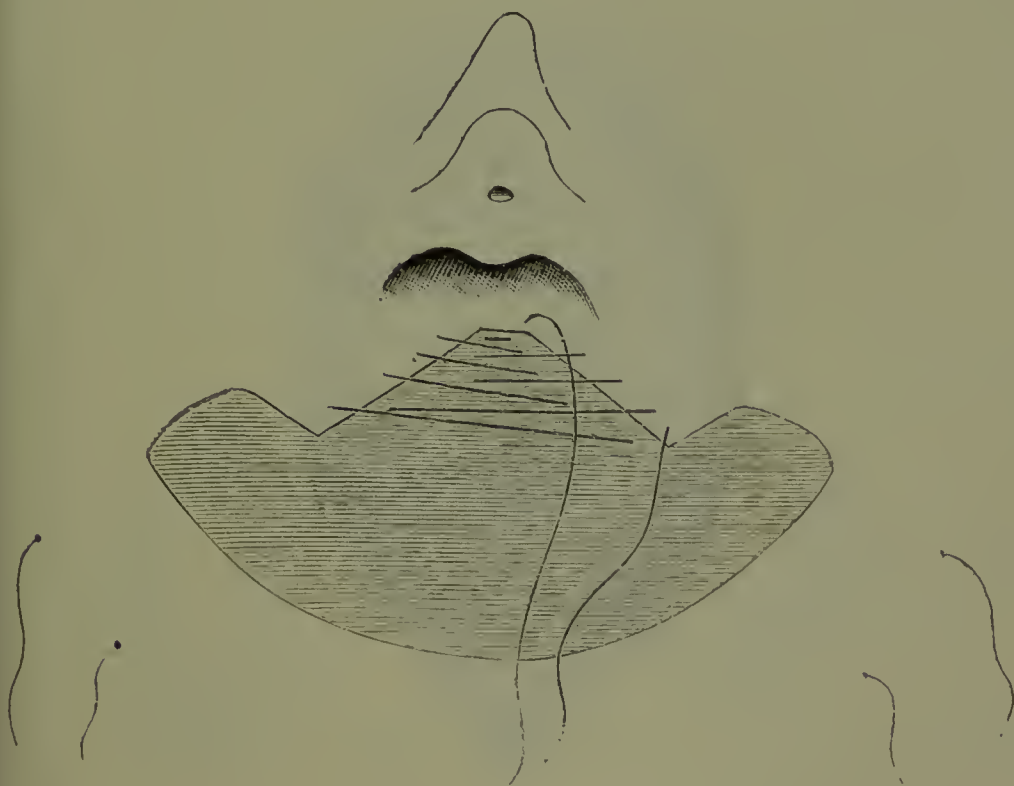
It was formerly the practice to give opium for some days, to prevent action of the bowels, but some operators—Dr. Bantock for instance—prefer to evacuate the rectum after two days by means of an injection of olive-oil. This should be carefully injected by means of a small tube, or mischief may be done. If the operation is simply a restoration of the perinæum, without involving the rectal sphincter, the difficulty of procuring an evacuation without interference with the reparative process is much less considerable. The use of the catheter for the first three days was considered essential, but it is now frequently dispensed with.

The *combined operation* (B), consisting of constriction of the vaginal canal as well as its lower aperture, I have practised in the following manner: One plan is to remove a triangular strip of mucous membrane about two inches broad below, and about half an inch broad above, from the floor of the vagina, the upper end or apex of the triangle being quite close to the os uteri. The ordinary operation (A) is then performed as described above. The shape of the surface thus bared is shown in the annexed drawing (fig. 143). Another plan is to remove *two* triangular strips from the vaginal canal, one on each side of the floor of the vagina, the operation (A) being superadded. When the edges of these triangular bared spots are brought together, the vagina is of course proportionately constricted. The method which I have pursued of maintaining the edges in apposition is to use a stout piece of silver wire. By means of a short curved needle, such as is used in vesico-vaginal fistula cases, the stitch used after *post-mortem* examinations is employed to bring the edges together, beginning from above. As the wire is drawn through it is straightened, and finally constitutes a kind of splint. In fig. 143 the arrangement of the suture is shown before the wire is pulled straight. The upper end of the wire, which is close to the os uteri, is turned downwards to prevent its scratching, and cut off short; the lower end projects at the perinæum, and is twisted round one of the beads when the operation is completed. This splint-stitch, as it may be termed, answers very well; healing generally occurs, and the wire, having done its work, comes away in four or five days without trouble or necessity for stretching the perinæal wound. If two triangular strips are

removed, the same procedure is adopted with each of them. This combined operation at once restores the perinæum and removes the superabundant and hypertrophied vaginal walls.<sup>1</sup> The two operations may be readily performed at one and the same time.

Dr. Savage describes a method of operating which substantially much resembles the above. He extends the perinæal operation by removing the mucous membrane upwards along the floor of the vagina, but he relies on deep sutures for producing coaptation. Such coaptation along this internal line can only be produced by

FIG. 143.



the deep sutures at the cost of shortening the vagina altogether. Such shortening, inasmuch as it implies descent of the uterus, I consider objectionable, and therefore the use of separate sutures for the vaginal floor are to be preferred. I have performed the above combined operation in several cases, and find it a satisfactory one, and I know that it has been performed and found satisfactory by others. The plan of extending denudation along the floor of the vagina in form of a triangle, as in the above operation, has been also practised by the late Professor Simon and others under

<sup>1</sup> This method of constricting the vagina was first described by me in the *Lancet*, June 5, 1869.

the term 'posterior colporrhaphy'; the edges being, however, approximated by ordinary stitches.

Another method of narrowing the vagina in the same part is that of Bischoff of Basle, described by H. Banga<sup>1</sup> of Chicago, the effect of which is that the lower part of the vagina is not only narrowed, but, owing to the elongation of the perinæum, its axis is brought forward. A tongue-shaped flap is separated in the direction upwards, and each edge of it is united by sutures to the posterior edge of the ordinary lateral denudation. The procedure is very ingenious. Banga states that since 1875 forty such operations have been performed by Bischoff, Engli, and Banga, with only one

FIG. 144.



death, and that when amputation of the cervix was also performed.

*Operation for constricting the upper part of the vagina.*—Dr. Marion Sims<sup>2</sup> describes this operation as follows: The operation consists in removing a V-shaped piece of the mucous membrane forming the roof of the vagina, and therefore covering the bladder. The apex of the V is near the urethra, and the two arms reach to the side of the cervix uteri. Finally, the shape of the excised surface is that represented in fig. 144. The opposite

<sup>1</sup> *Amer. Journ. of Obst.* vol. xi. p. 247.

<sup>2</sup> *Op. cit.* p. 310.



denuded surfaces are next brought together by means of sutures, *a* to *b*, *c* to *d*. The effect is, that the vagina has its canal much contracted; a little pouch is left opening at *e* (into which the uterine cervix might slip if the opening be left too large, as in cases reported by Dr. Emmet) for escape of the secretions of the part. Dr. Sims advises that, subsequently to the operation, the patient be kept in bed, or in the recumbent position, for two or three weeks, the bowels to be confined for a week, the catheter to be used. The lower sutures are removed in eight or ten days, the upper ones in a fortnight. The principle of Dr. Sims's operation

FIG. 145.

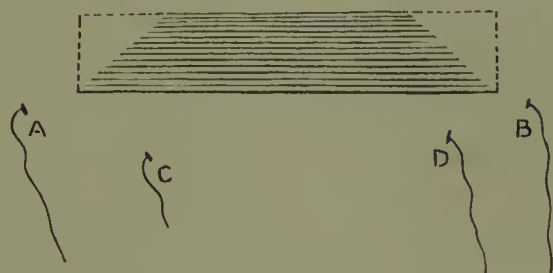


FIG. 146.

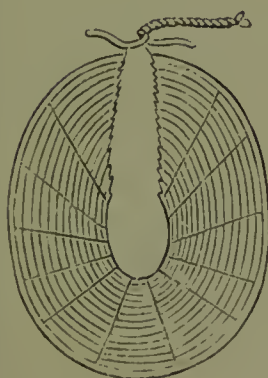
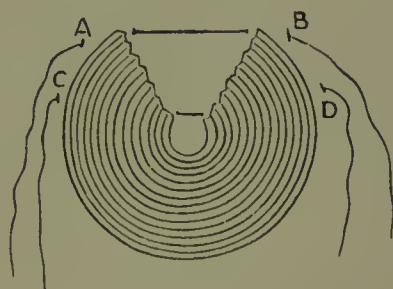


FIG.



is to constrict the vagina superiorly, and the constriction is effected by removing part of the *roof* of the vagina.

*Perineal rupture with destruction of the rectal sphincter.*—In cases where the sphincter ani is entirely destroyed the difficulty in restoring the integrity of the parts is very great. Dr. Emmet in 1873 published the results of his experience as to the best method of dealing with such cases.<sup>1</sup> He points out that the fibres of the severed muscle are in a state of retraction, those which formed the inner surface of the circle being more retracted than the others; the result being that a convex surface is presented at

<sup>1</sup> Latest particulars in his 2nd edit., 1880, p. 402.

the floor of the rent. It is necessary to denude the surface on each side farther back than at first sight seems necessary. The diagram (fig. 145) shows the retraction of the fibres after rupture. The suture A B will, Emmet points out, only imperfectly bring the parts together; fig. 146 shows the action of the suture. It is necessary to introduce a suture at a lower level, as at C D; and the action of this suture is shown in fig. 147. The suture C D is first secured, the bowels are relieved on the sixth day by castor-oil, the sutures being removed the day after. Dr. Emmet has exhibited great ingenuity in detecting and in surmounting what had before seemed a great difficulty, and anyone who has attempted the operation will appreciate the truth of this.

Mr. Lawson Tait practises an operation for the cure of severe perinæal rupture coupled with laceration of the sphincter.<sup>1</sup> He denudes the surfaces in a peculiar way by cutting into the tissues along the line of the laceration to a certain depth, and then opening out the raw surfaces thus produced and bringing those of the two opposite sides together by sutures, which are so introduced as to bring the deep angles of the incisions into approximation. The innermost of the sutures are in the vagina, the outermost are on the perinæal surface.

<sup>1</sup> *Obst. Trans.* vol. xxi. p. 292.

## CHAPTER XXXII.

## AMENORRHŒA.

DIAGNOSIS of Nature of AMENORRHŒA.—(a) Cases in which Menstruation is not, and never has been, present—The various Causes of this Condition; Defective Formation or Absence of the Organs concerned; Retardation of Puberty; Absence of Secretion; Retention; Pregnancy—Diagnosis of these one from the other. (b) Imperfect Establishment of Menstruation. (c) Cessation or Suppression of Menstruation—Causes of this Condition: Pregnancy, Suppression, Retention, Premature Cessation of Catamenia.

TREATMENT OF AMENORRHŒA.—Treatment for Delay of Puberty or Defective Development—Treatment for Disorder of General Health with Amenorrhœa—Emmenagogues, etc.—Chlorosis and Amenorrhœa—Vicarious Menstruation—Treatment of SUPPRESSION—Acute Form—Means to be Adopted—Emmenagogues; Mechanical Stimulation of Uterus—Treatment of Menstrual RETENTION—Cases of Absence of Vagina—Cases of Imperforate Hymen—Cases of Imperforate Os Uteri.

UNDER the term ‘amenorrhœa’ will be considered those cases in which menstruation is either absent altogether, or in which the quantity of discharge is less than it should be. The term is a very vague one, and simply defines the presence of a condition which may be symptomatic of many widely differing disorders or physiological changes in the generative organs.

The series of cases which may be first examined are those in which

(a) MENSTRUATION IS NOT, AND NEVER HAS BEEN, PRESENT.

The first point which it is necessary to determine, in endeavouring to ascertain the cause of the non-appearance of the menstrual secretion, is: Are the organs essential to the performance of this function actually present? In cases of *congenital absence of the ovaries* no menstrual discharge is likely to take place; and the same holds good if, the ovaries being present, the *uterus* be absent. Cases coming under either of these categories are rare. In cases of absence of the ovaries the external signs of puberty are wanting: the breasts, under such circumstances, would be small and undeveloped, and absence of sexual desire and of other femi-



nine characteristics, might be expected to be observed. *Absence of the uterus*, or what practically amounts to the same thing—extremely rudimentary formation of this organ—is less rare than absence of the ovaries. No absolutely distinctive signs of the absence of the uterus can be given: a careful examination only is the means of determining the diagnosis. From the facts which have come before me I infer that there is no absolute relation between the outward and the internal conformation. That is to say, the external generative organs may be normal, while the internal ones (*e.g.* the uterus) may be very small and imperfectly developed.<sup>1</sup>

Absence of any one of the parts of the generative apparatus just referred to—of the ovaries, uterus, or vagina—is rare; but it is not so uncommon to find that the uterus and ovaries, although actually present, retain their infantile conditions; that degree of development necessary to the establishment of the catamenial function failing to take place. (See chapter on ‘Malformations, etc., of the Uterus.’) There may be no defective condition of the bodily health to be detected, and yet from month to month there is no appearance of the discharge. The ‘proper’ age is gone by, and the friends of the patient become seriously uneasy. In a few cases of this kind the vagina is healthy, the uterus present; the only thing wanting, in fact, is the discharge, the cause being a slightly defective condition of the development of the uterus; this organ being found normally constituted, but retaining to too great a degree its childlike condition. Sir J. Y. Simpson called particular attention to the connection of this condition with ‘amenorrhœa.’<sup>2</sup> The signs of ovarian activity are either absent, or present only in a very slight degree. These cases give no occasion for anxiety as regards the immediate effect on the patient; but the prognosis may be serious as regards her matrimonial prospects. It is, in a word, uncertain what course will be taken with the generative organs—whether they will remain in this functionally idle condition, or not; and if not, when and how the appearance of the secretion will take place.

For the purpose of ascertaining, firstly, whether the vagina and uterus be actually present, and secondly, if present, whether they

<sup>1</sup> The subject of the congenital defects, malformations, etc., of the uterus, has been elaborately treated by Kussmaul in his work *Von dem Mangel, der Verkümmernng und Verdoppelung der Gebärmutter, etc.* 8vo. Würzburg, 1859. In this work there will be found a very large number of illustrative cases.

<sup>2</sup> *Med. Times and Gazette*, 1861.

present or not that imperfect degree of development alluded to, it will be necessary to undertake a physical examination of the condition of the external generative organs, and of the vagina and uterus.

It will be important to determine the question, *Is puberty retarded?* With reference to the arrival of puberty, we have first to look for the *outward* evidence of the same in the form, development, etc., of the body generally, and of the external sexual organs in particular; we have to seek for *internal* evidence of the functional activity of the reproductive organs, in the symptoms or signs described under the term 'menstrual molimen' (see 'Phenomena of Menstruation'). It must not be forgotten that the presence of the menstrual molimen does not indicate anything more than that the ovaries are present. The uterus may be so defectively formed that menstruation is not possible, although the ovaries are, so far as circumstances admit, exercising their normal function.

If the patient exhibit other characteristic evidences of having arrived at puberty, and no menstrual discharge has been observed—

Either (1) *There is no secretion of the menstrual fluid;*

Or (2) *The menstrual fluid is secreted but not evacuated—retention;*

Or (3) *The woman is pregnant.*

*Pregnancy.*—It is possible for a woman to become pregnant in whom no catamenial discharge has ever been observed, as several well-authenticated cases prove.<sup>1</sup>

In cases of *retention of the catamenia*, the ovaries and the uterus discharge their functions regularly, but there is no outlet for the secreted fluid. The uterus becomes enlarged, an abdominal tumour is felt, and the woman is often, under these circumstances, supposed to be pregnant. The ordinary history of such a case is as follows: Puberty arrives, and with it the indications of activity on the part of the generative organs, and recurrences of the menstrual molimina are observed from month to month. The pain and discomfort at these periods are at first inconsiderable, but after a time these symptoms increase in intensity; a sense of fulness and weight in the pelvis remains also in the intervals between the menstrual attempts. The symptoms become gradually more severe in character, the patient is never thoroughly easy and comfortable. The bowels are constipated; there are frequency of

<sup>1</sup> Montgomery, *op. cit.* p. 77.

micturition, permanent and severe pains in the loins, all periodically increased in severity. The health fails, and the patient passes from a condition of perhaps robust health to the opposite extreme; the appetite is lost, and nutrition greatly interfered with. And now the uterus, increasing in size from the presence of the retained catamenial secretion, forms a tumour readily detected in the hypogastric region: in some cases both vagina and uterus are distended by the retained secretion. The patient is sometimes considered to be pregnant, and the supposition that pregnancy exists is apparently perhaps confirmed by the presence of those gastric symptoms usually associated with pregnancy, such as vomiting and nausea. The breasts may also sympathise, and become painful and tumefied. The intensity of the symptoms observed varies much in different cases; and the degree to which the uterus becomes distended is open likewise to great variation; it would appear that in some instances a portion of the menstrual secretion is from time to time absorbed, and a large accumulation thus prevented. When the distension of the uterus reaches a certain point, pains in the back, resembling labour pains, and doubtless due to contractions of the uterus, are observed.

The diagnosis is arrived at by a consideration of the symptoms and by physical examination. The characteristic points, so far as the symptoms go, are—the presence of puberty; generally complete absence of menstrual discharge; presence of periodic attacks gradually increasing in severity, of the kind already described; a fulness in the pelvic region, which goes on increasing from month to month, and which gives rise to difficulties in micturition and defæcation; all these symptoms, be it observed, occurring soon (within the first year or so) after puberty has arrived. If the woman be married it will, in the large majority of cases, but not in all, be found that sexual intercourse is performed with difficulty, or that it cannot be performed at all. The physical signs are—presence of a tumour in the hypogastric region, discoverable by examination of the abdomen; and the want of an outlet for the menstrual fluid, discoverable by an examination of the vagina; the existence of atresia of this canal, imperforate hymen, or closure of the canal of the cervix uteri. The rare case of absence of the uterus, the ovaries being well developed and in activity, is to be distinguished from retention by the fact that the menstrual molimina, though present, are imperfectly marked and wanting in intensity; in addition to which, a simul-



taneous examination through the bladder and rectum would fail to detect the presence of the uterus in its normal position. Practically this latter question is hardly likely to arise.

The only other condition to be eliminated from the consideration is non-secretion of the catamenial fluid. Here the menstrual molimen (possibly) and puberty are present, but no discharge appears. If there be an absence of all signs of accumulation in the uterus, of symptoms of fulness and pressure, and of the physical signs before referred to as observable when the case is one of retention, these are indications that the case is not one of the latter description. The examination *per vaginam* detects no atresia of this canal, and sexual intercourse is not impeded. It is not sufficient to determine that the vaginal canal is free; for although the retention is mostly due to obstruction in this situation, the obstruction may be situated in the cervical canal of the uterus itself. The latter condition existing in connection with retention is, however, very rare. The causes of non-secretion will be considered presently.

#### (b) IMPERFECT ESTABLISHMENT OF MENSTRUATION.

There is a class of cases also very frequently presenting themselves in practice in which a discharge has occurred on one or more occasions, but very slight in amount, and only enough to show that menstruation is possible.

It is in connection with these cases of imperfect establishment of menstruation that a light-coloured discharge appears—replacing in a manner the catamenial flow—at intervals. This spurious form of menstruation may occur, for two or three or more periods before the normal flow occurs, even in cases when there is nothing evidently abnormal present. It is in such cases also that the so-called vicarious menstruation may occur; and the diagnosis of such cases is especially interesting, not less from the frequency with which they occur in practice than from their actual importance.

#### (c) SUPPRESSION OR CESSATION OF MENSTRUATION.

There are several conditions capable of producing a cessation of menstruation, and the function may be suddenly and completely put an end to, never to appear again, or the cessation may occur more gradually, but still before the proper age for its termination has been reached. And, again, menstruation may be

temporarily arrested, returning after some months' cessation. Again, there are many cases in which menstruation is not exactly arrested, but in which the discharge is exceedingly scanty in quantity, and wanting in the ordinary physical qualities of healthy menstruation.

Before discussing the varieties of amenorrhœa of a pathological character it will be necessary to describe that physiological suppression of menstruation due to pregnancy.

*Suppression of menstruation due to pregnancy.*—‘We are,’ says Dr. Montgomery, ‘quite justified in adopting, as a general rule, that in healthy women, whose menstruation has been established and continued regular, and who are not nursing, conception is followed by a suppression of the menstrual discharge at the next return of its period; but then this suppression may not so occur; and, on the other hand, it may happen from a variety of other causes altogether unconnected with pregnancy.’

The statements of the patient must be received with caution. ‘Nothing,’ says Casper,<sup>1</sup> ‘is easier for a person who is desirous of simulating pregnancy than to declare that menstruation has ceased for such and such a time; and it is only by a favourable accident that an examination is made at the catamenial period, and the imposition thus discovered.’ In like manner, menstruation is now and then simulated, in order to avert the suspicion of pregnancy, and artificial staining of the linen with blood has even been had recourse to, in order to carry out the deception. The actual value of menstrual suppression as a sign of pregnancy amounts to very little. Suppression of the catamenia for three or four months not unfrequently occurs from causes altogether independent of pregnancy. In young women, only just arrived at puberty, the interval is now and then as long as this before the function is thoroughly and completely established; and it is not very uncommon for the menses to be suppressed just after marriage, for a month or two, without pregnancy taking place.

If pregnancy have existed for more than four months, other data for diagnosis—enlargement of the uterus, mammary changes, etc., are available, and should be sought for by examination and otherwise. In women who have an object in concealing the fact of the existence of pregnancy, the absence of the catamenia for two or three periods is, however, to be regarded as a suspicious circumstance, and should be sufficient to put the practitioner on his guard, although it need hardly be observed that this suspicion

<sup>1</sup> *Practisches Handb. der gerichtlich. Medicin, Biolog. Th.* Berlin, 1858, p. 201.

should be confined to himself at this stage of the inquiry. The presence of 'morning sickness,' associated with catamenial suppression, would make the suspicion of pregnancy a little stronger; but some pregnant women are never 'sick.' As a rule, the suspicion of the existence of pregnancy may be dismissed if, after four or five months, the physical signs of pregnancy, such as enlargement of the uterus, etc., do not show themselves; but even this rule is one to which there are exceptions. It now and then happens that the catamenia are suppressed for two or three months, and the woman *then* becomes pregnant. In such a case the physical signs just alluded to would not, of course, present themselves at the end of the four or five months from the date of the suppression, and an erroneous inference might thus be drawn. In some rare recorded instances, women have been known to present the peculiarity of never conceiving until after three or four months' previous suppression. Again, pregnancy may occur at a somewhat advanced period of life, and when the menstrual phenomena have for some years altogether ceased. The absence of menstruation in a woman over forty years of age, for a period varying from two to nine years, *may* be followed by pregnancy at the end of that time.<sup>1</sup>

More frequently, perhaps, the fact of the menses having ceased is made the basis of the conclusion that pregnancy exists by women who desire to be pregnant, and who, somewhat advanced in life and arrived at 'a certain age,' interpret facts according to their own wishes. Here embarrassment is not seldom produced; women at this age are ready with all those presumed corroborative facts with which their own experience or the experience of their friends has made them familiar; and it is only by a rigid adherence to the rule to take nothing which is simply asserted for granted, that the practitioner will prevent himself from being led to form equally sanguine expectations with the patient herself. At the period of sexual involution—that is to say, at the time when the functions of reproduction are about to come to an end—the mere cessation of the menses is therefore of less value as a sign of pregnancy than at any other period of life. It is the fact, that, at this period of life, a suppression for two or three months, the discharge then returning, often rather profusely, is not at all unusual.

The absence of the catamenia, then, must never be considered as

<sup>1</sup> See Montgomery, *op. cit.*, for several interesting cases of this kind, pp. 88 *et seq.*



a proof of pregnancy; but in many cases it is of infinite service in directing attention to the view of its possibility. Examination of the abdomen, the vagina, and the breasts, gives more decisive information; and on the data thus afforded only can anything like a positive opinion be given.

*Presence of menstruation during pregnancy.*—In a certain number of cases, even when the patient is pregnant, a discharge more or less resembling the menstrual discharge may occur from month to month. Elsässer<sup>1</sup> has collected nearly fifty cases, in which a discharge of this kind was noticed during pregnancy. Thus, in eight cases a discharge occurred once during pregnancy, in ten cases twice, in one twice or three times, in eleven cases three times, in four cases four times, in six cases five times, in five cases eight times, and in two cases nine times during pregnancy. And cases are related—one I have myself placed on record<sup>2</sup>—in which patients habitually menstruate only when pregnant.

*Extra-uterine pregnancy.*—There are many circumstances which may give rise to a discharge from the uterus during pregnancy, such as cancer, inflammatory or congested conditions of the os, etc. An important class of cases, however, are those in which there is an occasional sanguineous discharge from the uterus, which may or may not simulate menstruation, in women the subject of *extra-uterine* pregnancy. A rather common symptom in cases of extra-uterine pregnancy is sanguineous discharge occasionally occurring during the two or three months immediately subsequent to the date of the supposed impregnation. Thus a woman six weeks after the date in question has a hæmorrhage. This may be due to abortion, it may be simply undue retardation of menstruation, it may be due to extra-uterine pregnancy. The points to which attention should be directed, if extra-uterine pregnancy be suspected, are the following: Presence of unusual pain at a particular situation in the pelvis; detection, by digital examination of the vagina and by examination of abdomen, of a tumefaction corresponding with the seat of the pain—an increasing enlargement. If the patient continue to present signs of pregnancy, while hæmorrhage recurs occasionally, this conjunction of signs is to a certain extent confirmatory of the suspicion. And supposing the patient to be suddenly seized, at the end of two or three or four months, with symptoms of

<sup>1</sup> Quoted from Henke's *Zeitsch.* Bd. 73, p. 402, by Casper, *op. cit.* p. 202.

<sup>2</sup> *Lancet*, vol. ii. (1858), p. 91. See also a case, not, however, precisely of the same kind, recorded by me in vol. viii. p. 221, of the *Obst. Trans.*

internal hæmorrhage (see 'Pain referable to Generative Organs'), a history such as that indicated, together with the symptoms of internal hæmorrhage, points to the conclusion that the case is one of extra-uterine pregnancy and rupture of the cyst, or of some vessel in its neighbourhood. In a remarkable case of extra-uterine (tubal) gestation, related by Mr. Cheesman,<sup>1</sup> the patient went beyond the full term, never even suspecting her pregnant condition, and deceived by the appearance of what she considered to be a menstrual discharge. There was a discharge from the vagina every five or six weeks, chiefly in clots. The case is the more remarkable that the patient had previously had four children.

Lastly it must be stated that cases in which menstruation, or, at all events, a discharge resembling it, is present for two or more periods, *coincidentally with pregnancy*, the pregnancy ending quite naturally, are not quite so rare as is usually stated.

The diagnosis between suppression of the catamenia of a pathological nature and the kind of suppression just alluded to, in which there is a physiological reason for it, is occasionally difficult when the catamenial discharge has been absent only for two or three periods; for the pathological suppression is sometimes accompanied with some of the general symptoms of pregnancy, as morning sickness, swelling of the breasts, etc., when pregnancy is certainly not present. This form of suppression very closely simulating pregnancy is noticed by Denman and Montgomery as frequently occurring soon after marriage; and Montgomery characterises such cases as always liable to great doubt, and extremely embarrassing to the practitioner. In an instance which came under my own observation, a like obscurity surrounded the case, but the patient had been married for several years. Under such circumstances the decision must be postponed, and a guarded opinion given.

Another case which is often a source of embarrassment is presented to our notice in young women in whom the catamenial function has only recently been set up; and here we may be in doubt whether the absence be due to suppression, to pregnancy, or to other causes which have been already considered. The absence of a known cause for suppression, the fact that the patient continues in good health, and the absence of signs of pregnancy, would lead to the inference that the case was one of retarded puberty (the age of the patient admitting of this hypothesis)

<sup>1</sup> *Lancet*, Sept. 14, 1861.

rather than one of suppression in the sense of the word in which it is now used.

*Delay in the appearance of menstruation (Amenorrhœa) from constitutional causes.*—In this class of cases the uterus and other organs are well formed up to a certain point, but fail in undergoing that further degree of change or increase in size which is usually observed at the age of puberty—the advent of puberty, in other words, is retarded. This retardation of puberty is, in most cases, the result of disease, of which we very shortly find other evidences present, but in a few cases the puberty is retarded much beyond the usual time, the individual remaining apparently in perfect health. These two classes of cases are widely different, and their discrimination, which is of great importance, has been already pointed out. Amenorrhœa from non-secretion of the menstrual fluid in women who have arrived at puberty, and in whom the sexual organs present no remarkable deviation from the normal state, is a symptom of very great interest, the cases included under this head being very numerous. It is very frequently the case that this form of amenorrhœa is connected with a defective condition of the general health. Of the *general conditions* which may be associated with this form of amenorrhœa *Chlorosis* is perhaps the most important. The signs of what is termed the ‘chlorotic’ condition are the following: At the period when the external signs of puberty begin to manifest themselves, the patient usually experiences, at monthly intervals, some of the ‘*molimina menstruationis*’ before referred to, but, coincidently, she falls into a general state of ill-health. The strength fails, there is extreme lassitude, often great drowsiness and indisposition to exertion of all kinds; there is cephalalgia, often very intense in character; the whole digestive system is deranged; inappetency, or singularly depraved states of the appetite, nausea, obstinate constipation—these are almost constant symptoms. The skin assumes a remarkable and highly characteristic appearance, being, as the name *chlorosis* denotes, of a greenish-yellow colour, more or less intense in degree in different cases; a ghostly kind of pallidity is often seen. The lower extremities may become œdematous, and the disturbance of the circulating apparatus is evinced both by this and by frequent palpitations, noises in the ears, and alterations of the sounds of the heart and of the great vessels detected by auscultation. The chlorosis and the amenorrhœa are to be regarded as both due to the disordered condition of the whole nutritive functions of the body, which is the primary etiological



element. Chlorosis may be observed not only in cases where there has been no menstrual discharge of any kind, but also in individuals who have formerly menstruated slightly, but in whom the menstrual phenomena have ceased to evince themselves.

In a certain number of cases the *tuberculous diathesis* exerts an influence in preventing the establishment of menstruation. This phthisical tendency is itself an evidence of an extremely low state of the nutritive powers.

An attack of severe illness of any kind will delay or prevent the appearance of the menses. Dr. West mentions a case in point, in which a severe attack of scarlet fever at the age of fifteen had had the effect of preventing menstruation up to the age of twenty.<sup>1</sup> *Cretinism* has a similar effect.

*Imperfect establishment of menstruation.*—Cases of this kind are not uncommon. The period of puberty arrives, and a slight menstrual discharge appears, then ceases, and reappears again slightly at the end of two months or more or less. Or the coloured discharge is replaced by a pale fluid, tolerably regular in its monthly appearance. These are cases to which the term amenorrhœa is, strictly speaking, not applicable, but they really belong to the same category as those just considered, for as a rule the deficient menstruation is due to some disorder of the general health. A circumstance sometimes observed in cases where menstruation does not take place is the occurrence of what is termed *vicarious menstruation*—a periodic sanguineous discharge from some other part of the body, one of the mucous surfaces, or the surface of an ulcer.

*Suppression of menstruation.*—Menstruation may be arrested at any period of its occurrence by the operation of certain external or internal causes, the stoppage occurring abruptly, or more slowly and gradually. We have thus two distinct types of cases.

*a. Sudden form.*—Here the circumstances indicate the operation of a disturbing element: the menstrual period having arrived, the discharge has continued for some hours and has then suddenly ceased, there being an apparent connection between the cessation in question and some external or internal disturbing influence known to have been in operation at that particular juncture. Thus the menstrual flow may be suddenly suppressed by the feet getting wet or by a chill received in any other way, by fright or by the reception of distressing or exciting news. Dr. Emmet quotes three cases of suppression due to mental shock (2nd ed. page 175).

<sup>1</sup> Lectures on *Diseases of Women*, p. 34.

These are the most common causes of the kind of suppression here alluded to. Sexual intercourse has been known to produce the same result. The first symptom of the presence of one of the exanthematous diseases may be the sudden stoppage of the catamenial discharge.

Another variety of this form of suppression is that in which there is no cessation of the discharge of the marked character just described; the discharge continues the regular number of days, but fails to recur at the expected time. This form of suppression, as also that which may be called 'suspension' of the discharge, may occur from a variety of causes. The catamenial function is frequently suspended, according to Sir Ranald Martin, in ladies on the voyage from India by the Cape. Dr. Tyler Smith states that these effects of a marine atmosphere extend in some habits to a residence by the sea-side. He mentions an instance in point, in which a lady who went to reside at one of the islands on the western coast of Scotland, together with her sister and their two maids, all became amenorrhœal.<sup>1</sup> Change of elevation from the Thames Valley to 500 feet above that level I have observed to occasion amenorrhœa in three separate individuals. Montgomery notices the effect of mental depression in producing this suspension in the case of young girls confined in prison. I have had occasion more than once to observe that women are liable to have the menstrual discharge suspended for one or two periods after first going to reside in a house the staircases of which are of stone and uncarpeted, their previous residence having had a wooden staircase only.

*β. Gradual suppression.*—Under this head may be considered those cases in which the discharge having diminished in amount for two, three, or more periods, or the interval having become longer and longer, it has finally ceased.

The causes of gradually supervening suppression of the menses may be conveniently classed under three heads—constitutional, organic, and physiological.

*Constitutional.*—Any circumstance, or chain of circumstances, calculated to interfere with the nutrition of the body generally and the due performance of the various processes the sum of which constitutes life, may give rise to suppression or cessation of the menstrual secretion. It very frequently happens that, at the very time when the vital processes are in a state of great activity—when the girl is changing into the woman, and it is more than

<sup>1</sup> *On Leucorrhœa*, p. 182.

ever necessary that the body should be duly exercised, well nourished, exposed to the fresh air, and recruited by sufficient rest—these conditions, so necessary to due development and healthy growth, are wanting. Young women belonging to the lower and middle classes of society, and who are engaged for many hours daily in sedentary occupations of various kinds, needlewomen especially, more particularly suffer in this way. The health gradually fails, and after a time menstruation ceases. Then, and not till then, in the majority of cases, advice is sought. Suppression not seldom takes place in a more acute manner in young women so engaged; a slight cause, and one which in a robust individual would be inadequate, being now sufficient to determine it.

When this gradual suppression is observed it behoves us carefully to scrutinise the bodily condition of the patient generally. The suppression is an important symptom, not in itself, but as indicative of some, perhaps deeply seated, morbid change, the early detection of which may be of the greatest service to the patient, if a right use be made of the knowledge thus acquired. The more common of the general constitutional conditions leading to the suppression now under consideration are—*long-continued anxiety of mind, plethora, chlorosis, anæmia, severe hæmorrhages, or long-continued discharges from the various mucous surfaces, deposition of tubercle in the lungs or other organs.*

*Premature termination of the catamenia*, which may be considered as a form of amenorrhœa, may be caused by chronic uterine disease, by severe and repeated hæmorrhages, etc., or it may occur without any assignable reason. In the case of a woman more than thirty years of age, the amenorrhœa may turn out to be permanent, although of course this could not be known at first.

Of the *local causes* of gradual suppression, the following are the chief. *Flexions of the uterus* frequently completely arrest menstruation, the discharge, less and less each year, finally ceases long before the proper time; and although in the majority of cases flexions tend rather to produce menorrhagia than amenorrhœa, cases of amenorrhœa are sufficiently common in connection with their presence. The discharge becomes scanty, and may finally cease altogether. Anteflexions, as well as retroflexions, may produce the result in question. *Disease of the ovaries* is often attended from the first with amenorrhœa, but not by any means always. When one ovary alone is affected, the menstrual functions



may go on apparently as usual. *Chronic peritonitis*, resulting in the formation of constricting bands over the ovaries—a condition to the frequent occurrence of which Dr. Tilt has, in this country particularly, called attention—may give rise to amenorrhœa of this kind. *Chronic hypertrophy* of the uterus is sometimes associated with amenorrhœa. *Fibrous tumour* of this organ also now and then produces amenorrhœa. Absence of menstrual discharge is sometimes noticed previous to the occurrence of *perio-uterine hæmatocele*. *Stricture of the cervical canal of the uterus* occurring after pregnancy, or produced by the repeated application of caustics to the os uteri, is occasionally met with as the cause of this form of amenorrhœa.

#### TREATMENT OF AMENORRHŒA ARISING FROM DELAY OF PUBERTY OR IMPERFECT DEVELOPMENT OF THE GENERATIVE ORGANS.

In cases where the arrival of puberty is simply delayed, if the patient be apparently strong and healthy, and if there be no appearance of menstrual molimina, no interference is necessary, at first at all events; and under these circumstances the result is usually satisfactory. The bodily rather than the mental faculties should be called into exercise, and every means taken to nourish and invigorate the system.

Absence of menstruation, together with absence of menstrual molimina, is hardly ever noticed after the age of nineteen or twenty, unless dependent on defective development of some part of the generative apparatus. In the chapter on ‘Uterine Malformations, etc.’ will be found cases illustrative of this condition. In cases of defective development of the uterus or other of the generative organs, the patient may be otherwise in perfect health. Those cases are the least encouraging in which the menstrual molimina are entirely absent. Where the absence of menstruation is connected with the presence of an undersized uterus—the ‘infantile’ uterus—Sir J. Y. Simpson recommended the continued wearing of a series of small galvanic pessaries of greater and greater length and thickness, a practice which has been since adopted with occasional success.

It need hardly be stated that cases requiring this method of treatment are very exceptional indeed. The circumstances which might justify or necessitate its adoption would be those in which general invigorating measures have been fruitlessly tried for a considerable period (which period would vary according to the age

of the patient), a very complete diagnosis made as to the state of the uterus, and the condition of the health of the individual being such as conclusively to show that the absence of menstruation is not dependent on any defect therein. The employment of Faradisation promises good results under such circumstances. In a well-marked instance of infantile uterus in a girl æt. 20 who had never menstruated, this agent was used under my direction in University College Hospital for some weeks. The action of the current had the effect latterly of inducing a copious leucorrhœal discharge. The patient became vastly improved by the treatment adopted, and left the hospital for benefit of change of air; but of the final issue of the case I have no information.

The prospect of a good result from such internal treatment of the uterus is infinitely small, unless the uterus be of a tolerable size. For instance, if the uterus be half an inch too short, and the patient has arrived at the age of twenty, little benefit of any kind could be expected. The double examination described at p. 29 should be always instituted in such cases: care is required to distinguish between a flexed uterus and one which is too short. Further, it must be recollected that the imperfectly developed uterus has naturally a greater degree of ante flexion than in the normal state.

In some cases, where the general health appears to be good but no menstruation occurs, marriage is efficacious in inducing the appearance of the menstrual flow. Marriage should not, however, be recommended with the view of curing amenorrhœa, unless means have been taken to ascertain that the vagina and uterus are well, or reasonably well, developed.

#### TREATMENT OF AMENORRHOEA ASSOCIATED WITH DISORDER OF THE GENERAL HEALTH.

A large number of such cases come before us: the discharge has appeared once or twice, slight in quantity, and has then ceased; the subjects of these symptoms being usually young women between the ages of twelve and eighteen, suffering from general indisposition of some sort, with which the amenorrhœa is associated. In a smaller number of instances there has been no attempt at menstruation, the patient having fallen into a state of ill-health before arriving at the menstrual age.

The relation, as cause and affect, subsisting between the disorder of the general health and the absence of menstruation, it is

exceedingly important to recognise from a therapeutical point of view. 'The function of menstruation,' says Sir Charles M. Clarke, 'like the other functions of the body, is best performed when the system is in health. Now, health is not constituted by excess of fulness, or by the performance of violent actions, any more than by debility or enfeebled action; consequently the exhibition of stimulants will not influence this secretion, unless attention be given to the restoration of the general health of the patient even in cases of debility. Still less will such a mode of treatment be applicable to cases of interrupted menstruation occurring in plethoric habits, where the presence of the plethora itself is the cause of the interruption of the due performance of the natural secretions. Instead, then, of resorting to such measures—to the employment of the whip and of the spur in such cases (when, if they do anything, they do mischief)—let the morbid peculiarities of the constitution and the habits of life of the patient be taken into consideration; let the first be counteracted, the second be improved; let the sanguine have her excess of fulness diminished, let the debilitated have her powers augmented; in short, let the general health be amended, and the functions of health will be restored.'<sup>1</sup> This is sound doctrine. The fruitlessness and absurdity of attempting, by so-called emmenagogues alone, to cure amenorrhœa coexisting with impaired health, are obvious. It must be held to be decidedly improper, by local stimulation of the uterus, to attempt to produce a menstrual flow in a phthisical patient, for instance—certainly, to give a prominent place to such treatment. It is the experience of all observant practitioners that those remedies act most efficiently as emmenagogues which produce a most decidedly beneficial effect on the defective condition of the general health. In treating such cases successfully, the production or the re-establishment of the menstrual secretion is the *final* result to be attained. Improvement in other respects must be effected first; the rest will follow as a matter of course, in the vast majority of cases.

The treatment, then, must be general—to find out what is the weak point, and to attack this. Either the patient has been living badly, taking too little food, or food not sufficiently nutritious—suffering, in fact, from a form of chronic starvation; or she has been leading a life too sedentary or too artificial, deprived of pure air—in short, subjecting the body, at a very critical period, to many influences known to be incompatible with sound health.

<sup>1</sup> *Diseases of Females*, part ii. p. 38.



A very important element in the treatment of amenorrhœa in many cases is the employment of *rest*, especially at the time when the menstrual period might be expected to occur. More particularly is this necessary in cases where the amenorrhœa has been brought on by over-exertion and under-feeding. Thus, I may cite the case of a young lady who had not menstruated for over a year, and had plainly taken too much exercise and too little food. She was directed to maintain the recumbent posture for some weeks, but she had only carried out these directions for a fortnight when the menstruation returned, and was afterwards regular in its appearance. In cases where we may not think it necessary to proscribe exertion, the horizontal position should be frequently adopted instead of the sitting one. We thus relieve the heart of a part of the work it has to do, and at the same time relieve the uterus from undue pressure.

In the industrial classes of the community, neglect of hygienic laws is still productive of an immense amount of mischief in this respect. In the higher classes of society it is too frequently the case that the solicitude of parents as to the mental culture of their children interferes materially with maintenance of physical health; and this is the chief reason why, in schools especially, there has been too little time devoted to exercise, and too much to sedentary intellectual work. The fault which is frequently committed in the management of young women and girls at school is the want of adjustment of the amount of exercise to the particular case. Some girls are strong and well nourished, and such may be benefited by a good long walk, always provided that they are *trained* to such exercise. On the other hand, girls who have not been well fed, whose tissues are weak and relaxed, succumb frequently, or lay the foundations of serious disease after a course of long walks for which they are not fitted in any sense of the word. What that serious disease may be has been described in the chapter on the 'Etiology of Flexions' (see p. 143). From the facts there cited it is sufficiently evident that, unless carefully regulated, severe exercise is dangerous in the case of young women not strong and not well fed. It has been the practice to recommend such exercises as horse exercise, long walks, etc., in cases of amenorrhœa. I have seen several cases where the following of this advice has been productive of great injury. It should be, but it is not, needless to add, that the observance of early hours, administration of good and nourishing food, thorough ventilation, warm clothing, are all essentially necessary for the preservation of

health during the two or three years preceding and following the date of commencement of menstruation. Observance of these rules—necessary to maintain individuals of good constitution in a state of health—is doubly necessary when there is a tendency to ‘weakness,’ or when disorder of any kind is actually present. On the important question of the *dietary*, and the effects of insufficient food (qualitative as well as quantitative), see a former chapter, p. 97.

We generally find, as an effect of the bad state of health of the patient, partly also as a cause of the same, that there is great sluggishness and inactivity of the digestive organs, evinced by want of appetite and constipation; and hence, before it is possible to administer the amount of nutritious food the patient requires, it is frequently necessary to effect an improvement in the condition of the digestive organs. Five or ten grains of the compound rhubarb pill, followed by a small dose of an aperient saline such as Friedrichshall water or Hunyadi Janos the next morning, may be given once or twice a week at first. Stronger medicines are rarely necessary. Hygienic measures, exercise in the open air, sponging with cold water, friction of the skin night and morning with a rough towel, these are valuable accessory measures, the importance of which must be thoroughly explained to the patient, or they will not be regularly and efficiently carried out. The patient should be well clothed, and great care taken to keep the surface and extremities warm. ‘It is,’ says Sir James Clark, ‘of the greatest consequence to invalids to maintain an active state of the circulation in the surface and extremities, which cannot be done in this country without the assistance of warm clothing.’ These remarks apply with great force to the particular cases now under consideration. After a few days, tonics, as iron and quinine, may be given twice or thrice daily, the condition of the bowels being regulated according to circumstances. One tea-spoonful of castor-oil given every morning is a very efficient remedy, when the patient is not strong enough to take much exercise, and when straining at stool must be avoided.

The efficacy of iron in cases of amenorrhœa is very great. It is best given as one of the components of a natural mineral water. As a medicine, it may be given in almost any form. The syrup of the phosphate is a good preparation. The citrate of iron and quinine is a good combination of the two remedies.

The dyspepsia often present in such cases is a most troublesome complication, and is best treated by administering *frequently*

*and in very small quantities*, for some days together, food of the simplest character; avoiding all solid matters, and giving the patient only such food as it may be found by experiment she is able to digest freely and easily. Milk and water, weak beef-tea, yolk of egg beaten up uncooked with milk, soups, Brand's essence of beef, are some of the most nutritious and easily digested foods. In some cases the use of artificially pre-digested food is a most valuable resource.

Wine is useful in many cases, particularly in cases where the patient has been in a state of chronic starvation (and such a state of things is not confined to the lower classes of society) for some months or possibly years past. The wine assists the patient to take food, and certainly materially supports the strength. To the administration of meat food I attach much importance. It should be given two or even three times a day or oftener, but in small quantities at a time (see pp. 98, *et seq.*).

Every means that can be devised to put the body in a sound state of health will be beneficial as regards the end in view—the induction of menstruation. This point must ever be kept in view: amenorrhœa is only a symptom, not a disease.

After suitable means have been well tried, and the condition of the health improved, it is occasionally advisable to send the patient to the sea-side for a short time, or at all events to order a change of air. In some cases, when medicines of a ferruginous nature are not borne well, it is found advantageous to send the patient to live in the neighbourhood of a chalybeate spring. The small quantity of iron which the water contains enables it to be taken, besides which, the change of air, scene, and occupation has a most beneficial effect in improving the condition of the health. The waters of Schwalbach, Spa, Pyrmont, Driburg, Kissingen, are some of those most to be recommended for internal administration. The ferruginous waters are not, however, to be exclusively recommended in obstinate cases of ill-health associated with amenorrhœa, for in some cases the continual use of hot baths, such as those of Vichy, Ems, Carlsbad, Wiesbaden, or Baden-Baden, do great good by increasing the action of the skin and of the secreting apparatus generally. Above all, patience is necessary in the treatment; we must not expect the discharge to appear at once, and, in point of fact, the patient usually improves in all other respects before this evidence of the cure being completed is obtained.

Are emmenagogues, then, never to be given with the view of



producing in a more direct and immediate manner the catamenial flow? But rarely. They are more especially applicable in the cases to be presently considered, where there is suppression, and where the menses have been present. The actual and immediate production of the menstrual flow in the class of cases now concerned is, however, advantageous in one way, that it sets at rest any doubt we may have as to the possibility of menstruation. And the more direct action may be sought to be induced in cases where general measures have been fairly tried and found unavailing; also in cases where, the general health being good, and no attempt at menstruation observed, it is thought expedient to try this method of treatment as a kind of *dernier ressort*. The best method to follow in endeavouring to induce directly this action of the uterus will be considered presently.

*Chlorosis and amenorrhœa.*—What has been said respecting the management of cases of amenorrhœa, with disorder of health of whatever kind, is here applicable. These cases are now and then obstinate, and in a chronic case time and patience are very requisite. The bowels are generally very costive. Daily, a laxative draught should be given, the medicine selected being that which acts most easily—rhubarb, Rochelle salt with manna, castor-oil; these are some of the simplest we can select, and by no means the worst; and once a week or so a stronger draught containing decoction of aloes with some aperient salt may be required. Ferruginous preparations are essential; small doses are generally the best; and they are most efficacious when given as constituents of mineral waters. It is often a matter of experiment as to which form of iron suits the best. The subjects of chlorosis are often so debilitated that great care is at first necessary, and they are unable to take much food or to bear much active exercise. Hence a vigorous treatment is not at first advisable. We must adapt the food and the regimen to the strength of the patient. Wine and good food are most essential in the management of these cases.

*Amenorrhœa with vicarious menstruation.*—The object of the treatment in these cases is first to improve the state of the health, which is generally bad, by tonics, etc., and secondly, to endeavour to induce congestion of the uterus and pelvic viscera at the menstrual periods. The patient should be treated, in fact, as if she were the subject of menstrual suppression. Lastly, it will be necessary to alleviate any discomfort, pain, or inconvenience which may be consequent on the presence of the unusual discharge.

## TREATMENT OF SUPPRESSION OF MENSTRUATION.

In a case of *acute* suppression of the menses, if seen in time, the proper treatment would be to place the patient immediately in a warm hip-bath, and to administer a stimulant, such as hot gin-and-water, and, especially if a sudden chill be the cause, to endeavour to excite the action of the skin by placing the patient in bed, and giving a dose (ten to fifteen grains) of Dover's powder. A sinapism should be applied to the hypogastric region; hot-water bottles or bags to the lumbar region. In strong or plethoric habits, cupping to the loins, or venesection, would be proper; leeches to the upper and inner part of the thigh might be used in most cases. It is probable that the most powerful means of inducing the return of the discharge under such circumstances would be either the application of electro-galvanism, or the administration of an enema containing aloes by the rectum. It generally happens, however, that when the patient comes under observation the period for such treatment is gone by. We must in such cases wait until a day or two before the next period, and then apply suitable remedies. The remedies consist in keeping the patient quiet, maintaining a comfortable temperature of the body generally, placing her in a hip-bath, with mustard, night and morning, for three or four times if necessary, administering two or three times a day a warm stimulating draught, and if the case be obstinate, and other circumstances do not forbid, in using galvanism, or some one of the emmenagogues to be presently spoken of. Opium is a most valuable remedy in cases where mental emotions have had to do with the suppression. We now and then meet with cases of sudden suppression in young women of weakly habit, who have been subjected to disturbing emotional influences at the menstrual period. In these cases, opium, and a supply of good nourishment, should be both freely given, and rest and quietude enjoined.

Many different medicines or remedial measures are set down as efficacious in inducing the flow of the menses; but they are exceedingly uncertain in their effects and action in different individuals, and very frequently have no effect whatever. Most of the so-called emmenagogues act, it must be concluded, by producing congestion and fulness of the vessels of the uterus and surrounding parts. The following are some most recommended: aloes in form of enema, dissolved in soap and water (Aran); the old pill of aloes and myrrh of the Pharmacopœia, which should be given in doses

of five grains or upwards, every night and morning, for a few days prior to the expected period; liquor ammoniæ, dissolved in milk (a tea-spoonful of the ammonia in a pint of milk injected into the vagina); savin, the oil of which may be given dissolved in mucilage in doses of three or four drops (Sir Charles Clarke, Dr. Tilt, and others); iodine (Dr. Rigby, who preferred it in the form of iodide of iron); Sir Charles Locock found a combination of myrrh, aloes, sulphate of iron, and the essential oil of savin, frequently of great utility. Ergot of rye, in doses of ten grains three times a day, is also highly spoken of by the same authority.

Mustard has been said (Ashwell, Rigby) to have an emmenagogue effect, given in doses of ten or twelve grains. Dr. Ashwell considered mercury the best remedy of the kind, and it has certainly appeared to me to do good in some cases in which I have employed it. On two successive nights, at the time of the next expected period, a dose may be given, each consisting of five grains of calomel and six grains of aloes, followed by a Seidlitz powder in the morning. The dose must be smaller than this if the patient be very feeble; indeed, presence of feebleness is contraindicative of necessity for this kind of treatment at all. The syrup of the iodide of iron is the remedy I have most frequently employed, and I think highly of it for long-standing amenorrhœa originally arising from suppression.

Sir J. Y. Simpson employed as a means of cure the application of direct stimulants to the interior of the uterus—nitrate of silver, cantharides, or iodine—by means of a *porte caustique*, the application to be made at the time when menstruation should occur, and repeated at monthly intervals; he also recommended a kind of dry cupping of the interior of the uterus, and the employment of galvanic intra-uterine pessaries of peculiar construction, in the form of amenorrhœa now under consideration. Dr. Althaus states that he has in many cases found great benefit from Faradisation assiduously and properly applied; Pulvermacher's apparatus is also a most simple and ingenious method of continuously applying this therapeutic agent, and is peculiarly suited for chronic cases of amenorrhœa after the general health has been re-established by suitable means.

Cases of *chronic suppression* require to be treated on the foregoing principle—first, to correct the ill-health generally present, then to encourage month by month, by gentle measures, the return of menstruation.



## TREATMENT OF CASES OF MENSTRUAL RETENTION.

The various physical conditions giving rise to menstrual retention require each a suitable method of treatment.

1. *Absence of vagina and menstrual retention*.—Here menstruation is not possible, there being no communication between the vulva and the uterus. Absence of such a communication is sometimes associated with defective development of the uterus; and in such cases, even if a communication existed, menstruation would not for that reason occur; but in other instances, although the vagina is wanting, the uterus is well developed, and menstrual blood is poured into its cavity at each menstrual period. The distension of the uterus may be very considerable, the sufferings of the patient gradually increasing in intensity, chlorosis and other signs of grave constitutional disorders being present. The only treatment capable of affording relief is a mechanical one. The difficulties encountered in affording such relief vary in different cases, but are always very much greater than in the case of imperforate hymen with retention. And not only are the difficulties greater, but the danger from an operation is more considerable.

The case operated on by Amussat<sup>1</sup> will probably always be quoted at once to illustrate the difficulties of an attempt to make a vaginal canal, and to point out how these difficulties may best be overcome. The case was that of a girl aged 15½ years, in whom the vagina was absent, and who had suffered from symptoms of menstrual retention since the age of 13. There was a tumour above the pelvis the size of the uterus at six months' gestation. The tumour was felt from the rectum; the urethra was the only opening at the vulva, and a sound passed into it could be felt from the rectum through a very thin partition ('à travers des parties très minces'). The diagnosis was evident. Thereupon Amussat, after stretching the vulva, pushed the handle of a sound upwards beneath the urethra, and then, using the little finger in a similar manner, sought to make a passage towards the fluctuating pelvic tumour, in the direction of the vagina. By drawing the perinæum downwards and at the same time pushing the finger inwards, a sort of separation was effected. Sponge was now inserted to maintain the dilatation, and three days later this combined tearing and dilatation process was resorted to anew. After two further attempts, on the two following days respectively, the tumour was finally arrived at. The dilatation was kept up by means of sponge. On the tenth day after the first operative procedure the tumour was punctured, first by a trochar, and

<sup>1</sup> *Gaz. Médicale*, 1835, pp. 785 and 817.

next by a bistoury, and the menstrual fluid, so long retained in the uterus, allowed to escape. The tumour was, at the time of the operation, two inches from the vulva. The opening into the uterus was enlarged, and a canula inserted. Inflammation of the left Fallopian tube resulted, clots were expelled from the rectum. Four times after this the patient suffered from menstrual retention, but a cure was finally obtained, and she was restored to such perfect health that two years later the question of the propriety of marriage was seriously discussed.

Amussat rejected the use of the knife from the obvious difficulty of avoiding the bladder on one side, and the rectum on the other. The chief difficulty of following Amussat's plan is the tediousness of the procedure, and the objection on the part of the patient to its continuance. In a case related by Bernutz<sup>1</sup> the operative procedure was interrupted for this reason, when, as it appeared from what took place subsequently, the tumour of the uterus was on the point of being reached. In a case very much resembling that of Amussat's, Dr. Braxton Hicks was prevented completing what promised to be a very successful operation for the formation of a vagina, in a similar way.<sup>2</sup>

Another method of treatment which has been adopted in cases of this kind is to puncture the uterus from the rectum. It is obvious that this procedure is open to the serious objection that the passage made for the escape of the menstrual blood is not in the natural position, while the evacuation of the fluid is also less under the operator's control. It appears that in some cases, however, the septum between the urethra and rectum is so thin as not to admit of the attempt to form a passage to the retained fluid in that position.

If formation of a vagina be really impossible, this tapping of the uterus from the rectum is the only alternative. For the performance of the operation a curved trochar is necessary, and great care must be exercised so as to avoid injuring the bladder. The observations as to the manner in which the fluid should be allowed to escape from the uterus, which will be presently made in relation to imperforate hymen, here apply with still greater force. The evacuation of the fluid must be made very slowly, the recumbent posture must be maintained, and opiates will be probably required.

An interesting case was related to the Obstetrical Society by Mr. Baker Brown, in which there was vaginal atresia with menstrual retention of two years' duration, the uterus as large as at

<sup>1</sup> *Loc. cit.* p. 207.

<sup>2</sup> *Obst. Trans.* vol. iv. p. 232.

four months of gestation. The uterus was tapped as above, the trochar left in for a fortnight. A month later the patient menstruated per rectum. In two cases, very similar to the one related by Mr. Brown, Dr. Braxton Hicks performed the same operation, and evacuated the contents of the uterus successfully. Dr. Hicks considers that the canula should not be left in the opening thus made for longer than ten or twelve hours; to avoid the introduction of air he recommends the canula to be plugged just before the complete evacuation of the uterine contents.

Dr. Emmet has operated very successfully in some cases of the same kind. He procures a passage by a combined process of cutting and tearing, using a trochar finally to draw off the retained menses, and washing out the uterus at the end of the process and inserting a glass dilator. Dr. Galabin<sup>1</sup> records two cases where a somewhat similar operation was performed; but his experience was unfavourable to the use of an injection into the uterus as a part of the operation, for one of the two patients died. Dr. Galabin considers the congenital cases more unfavourable for use of injections. He also cites four cases of operation in which the occlusion was the result of cicatricial contracture following labour or operative procedures, in which he allowed the fluid to drain off after puncture, not using uterine injections until twelve hours after; all the four cases doing well.

As regards the general question of the success attending operations of the above character, it appears that so far as the relief of the retention is concerned they are tolerably successful; and there is no great difficulty in maintaining an outlet sufficient for escape of menstrual products. But as regards the maintenance of a vaginal canal sufficient for marital purposes, experience shows that this is frequently a matter of great difficulty, and that repeated operations with much and persevering use of dilators are required, in most instances, to preserve a sufficiently large vaginal canal.

2. *Imperforate hymen with menstrual retention.*—The operation required in these cases is perforation of the hymen. In a certain number of cases death has taken place after perforation of the membrane, for the relief of menstrual retention, and blood has been found effused into the peritoneal cavity, thus giving rise to peri-uterine hæmatocele. In other cases death has occurred, without effusion of blood in this manner, from peritonitis and pyæmia.

<sup>1</sup> *Obst. Journ.* 1878, p. 360.



In these cases of menstrual retention, the uterus, the Fallopian tubes, and the vagina, are distended with blood, the uterus attaining sometimes a very great size, and reaching as high or higher than the umbilicus in extreme cases; this state of things having persisted for several months, in some instances even for years, before the nature of the case has been recognised, or, at all events, before effectual relief has been attempted. The cavities containing the blood have their walls greatly thinned and otherwise altered.

Bernutz<sup>1</sup> thought the unfortunate result, when associated with intra-peritoneal hæmorrhage, due to the contraction of the uterus, set up by the evacuation of the fluid, continuing and forcing the blood contained in the Fallopian tubes into the peritoneal cavity. This explanation probably holds good in most cases of this kind. The fatal result, in some instances, may be due to a combination of one or more circumstances. The sudden withdrawal of the distending force in cases where the walls of the Fallopian tubes have been thinned and enlarged, must itself have an injurious effect on the vitality of the tissues of the part in question. A certain number of deaths are to be attributed to purulent absorption, the admission of air producing decomposition of the blood and pyæmia. It is evident that the circumstance pointed out by Bernutz is exceedingly important in reference to the plan of treatment to be adopted in these cases.

A careful survey of the facts on record would seem to lead to the conclusion that a fatal result is much more likely to occur when the retention has lasted a long time; and the prognosis would consequently be more favourable for an operation performed two months, than in the case of an operation performed six months after the first attempt at menstruation. And this would clearly indicate the great importance of an early and complete diagnosis of the case. With respect to the operation itself, it is evident that in a case of retention due to imperforate hymen, the mechanical is the only treatment possible. A way must be prepared for the evacuation of the fluid, and to allow of the occurrence of menstruation. The mode of performing the operation which I consider preferable is as follows: In the first place, it is extremely desirable that the evacuation of the fluid from the generative passages be spread over as long a period as possible in order to prevent undue and irregular action of the uterine fibres, and to allow time for the parts to return in the most gradual manner to their proper

<sup>1</sup> *Clin. Méd. sur les Maladies des Femmes*, tom. i. p. 68.

size. In the second place, it is absolutely necessary to avoid all possibility of passage of air into the vagina and uterus during or after the operation. The plan formerly adopted was, by means of a lancet, or bistoury, or trochar, to make an opening in the hymen sufficient to allow of the escape of the chief part of the retained blood at once, and at the time of the operation. I believe it better to make an opening at first just large enough to allow of the escape of a very minute quantity of fluid, and that this opening be made obliquely in the obstructing membrane, giving it a valvular character. The fluid should be evacuated *guttatim*. If the opening become closed, a second and similar opening to be made the following day, or two or three days later, and a firm but gentle support given to the abdomen by the aid of a bandage and carefully adjusted pad of cotton wool during the whole period of evacuation of the fluid. The patient to be kept in a state of absolute rest. The aperture in the hymen should not be increased in size until the uterus has returned to its proper dimensions, the object being, at first, simply to allow the fluid to escape in the most gradual manner possible. If, by any chance, air enter, and the fluid become decomposed, it would be safer at once to make a free opening and freely employ antiseptic injections. It is satisfactory to find that this method, suggested in a former edition of this work, has been adopted by others, and found to answer well. I have found it satisfactory and reliable in the cases which have come under my own notice. It is questionable whether the practice of injecting water into the uterus as a *primary* procedure after an operation of this kind be safe. Bernutz recommends that in evacuating the fluid a period be chosen for the operation eight or ten days after a menstrual period, and that a small trochar be used. He considers pressure over the abdomen objectionable. In the latter particular the method recommended by myself differs from that of Bernutz, for I consider, and my plan has been tested in practice, the pad and bandage indispensable. In other respects the principle of the two methods is identical, in both the necessity for slow evacuation of the fluid being recognised.

3. *Retention from imperforate os uteri*.—Cases of *complete* retention due to this cause are rare. The more ordinary cases of *incomplete* retention—in other words, dysmenorrhœa—will be dealt with in the chapter on ‘Dysmenorrhœa.’

## CHAPTER XXXIII.

## MENORRHAGIA.

DEFINITION.—Various Forms of Menorrhagia.

PATHOLOGY AND ETIOLOGY.—Relation of Pregnancy and Abortions to Menorrhagia and Metrorrhagia—General or Constitutional Causes—Locality—Lead Poisoning—Sexual Excesses—Pyrexial Disorders—Cancer of the Uterus and allied Affections—Polypi and Fibroid Tumours—Peri-Uterine Hæmatocele—Chronic Inversion of the Uterus—Climacteric Hæmorrhages—Flexions of the Uterus—Chronic Congestion of Uterus and Hypertrophy of its Mucous Lining (so-called Fungosities)—Relation of latter Conditions to Flexion—Defective Involution—Abnormal Conditions of Os Uteri—Laceration—Eversion—Hypertrophy—Small Mucous Polypi.

DIAGNOSIS.—Examination of Uterus—Examination of various Substances expelled.

GENERAL TREATMENT.—Tonics, Baths, Medicines and other Measures.

LOCAL TREATMENT.—Intra-Uterine Cauterisation, and Removal of Mucous Membrane by Scraping.

THE term ‘menorrhagia’ implies an excessive menstrual discharge. The term ‘metrorrhagia’ indicates hæmorrhage from the uterus not menstrual in origin. At least this is the ordinary distinction drawn between them.

When a discharge of blood occurs from the female generative passages, it may proceed from the uterus, as is generally the case, or it may prove to be a hæmorrhage from the vaginal wall, from the vaginal outlet, from the bursting of a varicose pudendal vein, or from the urethra. Hence cases of bleeding from the generative passages are not necessarily cases either of menorrhagia or metrorrhagia.

The catamenial secretion appears to be naturally more profuse in some individuals than in others, the quantity of the secretion being great, or the period during which it is observed being extended, from the presence of what may be characterised as idiosyncrasy, from the influence of climate, age, and the like. All these circumstances must be taken into account in giving an answer to the question, ‘Is the catamenial secretion excessive?’

In practice, the forms under which menorrhagia and metrorrhagia present themselves are numerous. The following are some



of the more common forms in which these unusual losses of blood from the generative organs exhibit themselves :—

1. The menstrual discharge becomes gradually from month to month increased in quantity, until in the aggregate the quantity lost is really considerable.

2. The loss at the monthly periods is great, and accompanied by passage of clots, presence of pain, etc.

3. The patient loses an excessive quantity of blood at the periods, and occasionally also in the intervals a copious discharge of blood suddenly occurs.

4. There is an almost continuous discharge of blood from the generative organs, sometimes with clots, alternating with leucorrhœa.

5. The loss of blood occurs suddenly, and not at the menstrual period, and is accompanied by pains in the back or region of the uterus.

This list might be indefinitely increased. The variations in regard to the attendant phenomena, pain, intermittent leucorrhœa, offensive character of the discharge, and prostrating effects on the system, are also numerous.

In seriousness of character, also, we have many varieties. In many instances the loss of blood is simply an inconvenience; in others the patient's life is in peril from the quantity lost. In other cases, again, the prognosis is unfavourable because the disease occasioning the loss is a serious one.

#### PATHOLOGY AND ETIOLOGY.

Undue bleeding from the uterus may be produced by a great variety of causes, and the difficulty of differentiating these various causes is increased by the circumstance that the uterus being the source of a periodical natural bleeding, there is a predisposition to hæmorrhage from this organ which does not exist in the case of other organs of the body.

*Relation of pregnancy and abortions to menorrhagia and metrorrhagia.*—Here it may be desirable, in connection with the subject of menorrhagia, to allude to that important class of cases in which the loss of blood is connected with the presence, or previous presence, of the fruit of conception within the uterus.

A discharge of blood from the generative organs in a case where menstruation has been previously absent for a month, or for a period of two or three months, and in a woman whose age

does not forbid the idea of pregnancy, should *always*, whatever be the condition and circumstances of the patient, suggest the possibility of the presence of abortion.

In cases of abortion, the menses are found to have been absent for from two to four or five or six months; the hæmorrhage which occurs begins slowly, preceded sometimes by shivering, sickness, pains in the back and thighs, etc.; and is accompanied by pains at the lower part of the abdomen, resembling, and in fact identical with, those of labour. The hæmorrhage is not continuous, but pauses, and recurs again after ceasing a few minutes or more. There is generally, too, a periodicity in the recurring attacks of pain and hæmorrhage. At the end of a few hours, or, in some cases, a shorter interval, the ovum, or portions thereof, are expelled, together with clots; and if the expulsion have been complete, the hæmorrhage ceases, unless perchance there be a second ovum still in the uterus, as in case of twins. The expulsion may be delayed for a much longer time, or the embryo may be expelled, leaving the membranes behind, and in such cases the hæmorrhage continues, becoming at times very profuse. Hæmorrhage from the uterus, more frequently than is usually supposed, occurs from abortion at about the second month in married women; the real cause being often overlooked, and the case supposed to be one of simple menstrual irregularity. I have known cases of abortion which have nearly proved fatal owing to their being mistaken for simple menorrhagia. The diagnosis of early abortion from excessive menstruation is indeed often far from easy. If the abortion take place at an early period, examination of the uterus from the vagina gives no positive data for determining the point. The only reliable evidence obtainable at this period is that afforded by a very careful examination of the clots or matters expelled from the uterus. (See 'Substances expelled from the Generative Passages.') At a later period, the evidence from the physical condition of the uterus is more decided.

If an abortion have occurred recently, and hæmorrhage take place a few days after, recurring possibly on successive occasions, it may turn out, on inquiry or on examination, that the embryo has been expelled, but the placenta, or some portion of the membranes, retained. Such retention is often a cause of most severe and dangerous hæmorrhage. The placenta is small in the case of an ovum at three to four months; but yet, when retained in the manner stated, it may be the cause of severe and extensive hæmorrhage. When the embryo is expelled earlier than this, the

part left behind is constituted chiefly by the decidua; and this substance may become thickened and hypertrophied to a very remarkable extent. A vaginal examination is always necessary in a case of suspected abortion. We must not rely too much on the assertions of patients. Sometimes clots only have come away, when it is stated that the abortion has occurred.

During the last three months of pregnancy, hæmorrhage now and then occurs from the placenta being attached partially or entirely over the mouth of the uterus—*placenta prævia*. We draw the inference that when, in the latter part of pregnancy, hæmorrhage suddenly occurs, the presence of placenta prævia is to be suspected. Between hæmorrhage the result of an abortion, and of placenta prævia, there is this difference: in the case of abortion, the patient may or may not be aware of her pregnant condition, or, knowing her pregnant state, may have reason for wishing to mislead her attendant; in cases of placenta prævia the patient is usually known to be pregnant. Hæmorrhage may occur during pregnancy, and may be profuse, when there is nevertheless no implantation of the placenta over the os uteri; the cause being a separation to a slight extent of the placenta from the uterus. Such hæmorrhages have been called in obstetric language ‘accidental,’ as distinguished from the ‘unavoidable’ hæmorrhages the result of placenta prævia. An ‘accidental’ obstetric hæmorrhage may or may not be followed by expulsion of the child.

*General or constitutional causes.*—The condition of the blood itself is undoubtedly an important etiological element in many cases. The various diathetic conditions which are known to predispose to hæmorrhages generally come under this classification.

*Persistent and repeated hæmorrhages* of any kind, by producing a weak, watery, defibrinous condition of the general circulating fluid, may thus give rise to menorrhagia and metrorrhagia. *Purpura, or the tubercular diathesis*, may induce bleeding from the uterus much in the same way.

*Bright's disease of the kidneys*, indicated by an albuminous condition of the urine, generally accompanied also with œdema of the ankles, eyelids, etc., is one of the most important general causes of menorrhagia. *Excessive lactation* is another equally important cause; patients are often excessively debilitated under these circumstances: as a further consequence in these cases of excessive lactation, *mania* is not unfrequently observed. *Long-*



*continued mental depression* is both a cause and an effect of menorrhagia. Then we have a large number of cases due to *chronic disorder of the digestive organs*, leading to congestion of the uterus and pelvic organs generally, *chronic affections of the great viscera, the heart, lungs, and liver*, also giving rise to the congestion of the pelvic organs, and, short of actual disease, general derangement of the system produced by *luxurious living and sedentary or unhealthy occupations*.

Residence in damp or marshy districts, where *malarious influences* are rife, has been shown to be the cause of profuse menstruation in certain cases: here menorrhagia is not unfrequently present together with intermittent fever. *Residence in tropical climates* is, in the case of Europeans, followed, in most cases, by profuse menstruation; indeed, in most cases where women return to England from India in a broken-down state of health, menorrhagia is a prominent symptom. Troublesome flexions of the uterus are also frequently found to be present in such patients.

Menorrhagia may be present *in cases of lead-poisoning*. It was first pointed out by Paul<sup>1</sup> that abortions are very frequently observed in women subjected to the influence of lead, and also that in the same class of cases menorrhagia is very common. I have observed cases the facts relating to which are quite confirmative of Paul's statement. Mr. Benson Baker has contributed further facts confirmatory of Paul's statements.<sup>2</sup>

*Sexual excesses*, or circumstances calculated to excite and maintain the existence of erotic tendencies for any length of time, produce occasionally such a degree of functional activity of the ovaries as results in the production of profuse menstruation, and of hæmorrhage at non-menstrual periods. The amount and character of the menstrual discharge being thus guided and affected by the condition of the ovarian function, it is not to be wondered at that, when the *ovaries are the subject of disease*, the uterine sanguineous discharge should be also deranged. More generally the presence of ovarian disease diminishes, or at all events does not increase, the menstrual flow; but the reverse has been pretty frequently observed. Mechanically, also, and in common with other adjacent organs, disturbances of the circulation in the ovaries may tend to hæmorrhage from the uterus. The practical deduction is that, in a given case, functional activity of the ovaries, or

<sup>1</sup> *Arch. Gén. de Méd.* 1860.

<sup>2</sup> 'On the Influence of Lead-poisoning in producing Abortion and Menorrhagia, with Cases.' *Obst. Trans.* vol. viii. p. 41.

disease of these organs, may be the cause of uterine hæmorrhage, the uterus itself being really in a healthy state.

*Pyrexial disorders.*—Perroud ('Gaz. Méd. de Lyon,' Jan. 1862) has observed that an occasional effect of the onset of the pyrexial disorders is the appearance of the menstrual flow a few days before its time. In scarlet fever, in small-pox, in measles, unusual profuseness of the menstrual discharge, in some cases associated with the accident known as peri-uterine hæmatocele, has been observed. Mr. Benson Baker, who has made numerous observations in reference to small-pox, states that this sudden appearance of menstruation was a frequent premonitory symptom. Profuse menstruation is also liable to occur as one of the *sequelæ to fevers*.

*Mental disturbances* may give rise to a flow of blood from the uterus of purely menstrual character, although not appearing at the ordinary menstrual period.

#### ORGANIC DISEASES OF THE UTERUS.

*Cancer of the uterus.*—Of this occasionally insidious and very fatal disease, hæmorrhage to a greater or less extent is a prominent symptom, though not invariably so. The amount and periods of occurrence of the hæmorrhage vary according to the seat of the disease and the stage to which it has advanced. When a woman has entered on what may be called the 'cancerous age,' and begins to suffer from menorrhagia with occasional losses of blood besides, or when, having ceased to menstruate, hæmorrhages are observed, the possibility of this symptom being due to cancer must be recognised. Later—that is to say, when the disease is more advanced—hæmorrhage is rarely the only symptom present, and we have generally much pain, an offensive sanious leucorrhœa, and constitutional disturbance. One point must particularly be recollected, that, for a certain time, hæmorrhage may be the only sign observed.

Thus, in a series of cases carefully observed by Dr. West, hæmorrhage was the first symptom in 43·9 per cent. of the cases. In certain cases there may be an entire absence of the sign now under consideration, there being only profuse menstruation present. Another circumstance, also rare, but which may be subject of observation, is that the hæmorrhage is unattended with pain. In an instance noted by myself the first occurrence of hæmorrhage was produced by sexual intercourse, the patient, aged 48, being affected with undoubted cancer.

*Cauliflower excrescence of the os uteri* gives rise, as a rule, to hæmorrhages of an irregular character. The hæmorrhage is usually brought on by walking, by exertion of any kind, by coughing, sneezing, etc. There is usually offensive watery discharge present in cases of this disease.

*Sarcoma of the uterus and corroding ulcer of the os uteri* are rare affections, attended with hæmorrhage, like that of ordinary cancer, of which disease they are probably only varieties.

*Polypi and fibroid tumours.*—The several kinds of *polypi* of the uterus produce hæmorrhage, often very severe, and sometimes of an ultimately fatal character. The abundance of the hæmorrhage is not by any means in direct proportion to the size of the polypus, but depends rather on the degree of vascularity present. The hæmorrhage is irregular in character, and, coinciding more or less with the menstrual discharge, as it frequently does, it may be at first overlooked; its tendency is to increase in quantity, but the march of the symptoms is slow, and if the loss be not considerable, the general health may remain little affected. A most important class of cases are those in which polypi, entirely within the uterus, occasion severe hæmorrhage, the cause of the hæmorrhage escaping recognition owing to the absence of dilatation of the os uteri. Sir J. Y. Simpson was the first to point out the necessity for exploring the interior of the uterus, by dilatation of the os uteri, in suspected cases of this kind. When the polypus becomes very large, ‘pressure’ signs, such as difficult micturition, difficult defæcation, accompany the enlargement of the uterus which results. Abortions are frequently due to the presence of uterine polypi. Clots or partial moulds of the uterine cavity are found sometimes in the discharges. With reference to the kind of polypus present, the nature of the hæmorrhage gives us no precise information. Very profuse hæmorrhage sometimes results from very small tumours—‘mucous’ polypi, as they have been called—situated just inside the os. In cases of polypus uteri, there may be profuse leucorrhœa, and there may be much pain; but the leucorrhœa is not, except in rare instances, offensive, as it is in cancer, and the pain is of a different character. Moreover, the patient with polypus may, comparatively speaking, remain *in statu quo* for some time—an observation which does not apply to cancer. Cases are not rare in which uterine polypi remain for years undetected, the hæmorrhage, by its long continuance, finally sapping the very foundations of life, the skin becoming



etiolated and withered-looking, and the patient reduced to an extreme state of feebleness.

*Fibroid tumours of the uterus*, which have a composition identical with that of fibrous polypi, both being but growths of the uterine tissues, may or may not cause hæmorrhage, the position of the tumour very much affecting this result. Thus, if the tumour project into the cavity (sub-mucous variety), the result, as regards the hæmorrhage produced, will be pretty much the same as if a polypus were present. The further the tumour is from the mucous membrane, the less frequently, as a rule, does hæmorrhage occur. In the early stages of these growths hæmorrhage may be entirely absent. Menstruation is generally excessive, both as regards duration and as regards the quantity poured out; sooner or later other symptoms, interperiodic hæmorrhages, abortions, etc., are usually observed. When these fibrous growths attain a very considerable size, they often produce pressure signs, as in the case of large polypi. The hæmorrhage produced by the presence of fibroid tumours is often accompanied by a good deal of pain, and the pain is spasmodic, somewhat resembling pains due to abortion. Cases of abortion are distinguished from cases of fibrous tumour with hæmorrhage by the circumstance that the pain and the hæmorrhage cease together in the former instance, but not in the latter.

#### PERI-UTERINE HÆMATOCELE.

Cases in which there is an *abrupt appearance of profuse menstruation* require a special mention. A sudden attack of this kind is found, in a certain number of cases, to be associated with a most dangerous and alarming accident, the pouring out of blood in the pelvis, in the neighbourhood of the uterus, either in the peritoneal cavity or into the cellular tissue beneath the peritoneum, giving rise to formation of a tumour—*peri-uterine hæmatocele*—and the production of a series of symptoms of a highly interesting and important character. The sequence and intensity of the symptoms, of course, vary in each case; they often present themselves in the following order: Previous good health, as regards menstruation, abrupt appearance of a considerable flow of blood from the uterus at a menstrual period, great pain in the abdomen, and symptoms as of perforation, a blanched condition of the skin, and all other signs of violent hæmorrhage, syncope, etc. The patient may die from the actual loss of blood effused under these circumstances into the peritoneum, or from the effects of the

subsequent changes in the clot there formed. The accident termed peri-uterine hæmatocele is not always accompanied by profuse menstruation; indeed it very frequently happens that at the time of the occurrence of the internal hæmorrhage the external discharge is not observed. The most common case is perhaps that in which menstruation, having been generally and for some time rather profuse, becomes for a time either suppressed or much less than usual; the symptoms of internal hæmorrhage then suddenly appearing. The peri-uterine hæmatocele is not, it must be recollected, the *cause* of the excessive menstruation. The cause of both the excessive menstruation and the hæmatocele will be found in some predisposing general condition of the patient, or some previously existing change in the ovaries, tubes, etc., or both general and local disease combined. Irregularity of menstruation of some kind or other generally precedes the attack; and the practical fact to bear in mind is, that a suddenly occurring attack of profuse menstruation may be associated with this dangerous accident.

*Chronic inversion of the uterus.*—This is a condition capable of giving rise to severe hæmorrhage. Curiously enough, the existence of this condition is sometimes found to have escaped recognition for so long a time after the delivery that the diagnosis of the nature of the case has been rendered very doubtful.

Hence the necessity for calling attention to the fact that hæmorrhage, occurring some time after a particular labour, may be found to be due to this condition—inversion. As a rule, where the accident has escaped recognition, it is found that there has been hæmorrhage occurring at intervals ever since the delivery; that the hæmorrhage was at first very severe; that it gradually became less; that subsequently it assumed the character of excessive menstruation, the hæmorrhages for the most part occurring coincidently with the usual catamenial periods; that between these, however, great losses of blood had been often observed. The hæmorrhage is not profuse and sudden in character, but it is a continuous drain going on for a certain time, and then ceasing partly or entirely. In such cases there is also profuse and purulent leucorrhœa. The symptoms, of course, date from a previous pregnancy; and, in nine cases out of ten, it is found that undue force was used in the removal of the placenta after the delivery in question. Polypus of the uterus gives rise to symptoms very closely resembling those of inverted uterus.

*Climacteric hæmorrhages.*—When the menstrual flow is

finally about to cease, profuse losses of blood are apt to occur, and to recur at intervals for a considerable time. Climacteric hæmorrhages are more often observed in sanguine temperaments, and in those who have been the subjects of profuse menstruation. They sometimes simulate hæmorrhages due to cancer of the uterus.

*Flexions of the uterus.*—Both retroflexion and ante flexion of the uterus may occasion very severe menorrhagia. The hæmorrhage is perhaps more liable to be very severe in cases of retroflexion, but I have seen very profuse losses of blood from ante flexion. And inasmuch as ante flexion is more common than retroflexion, menorrhagia is more frequently produced by ante flexion than retroflexion.

The excessive loss of blood which is liable to occur in cases of flexions appears to be associated with the obstruction to the circu-

FIG. 148.<sup>1</sup>



lation in the organ, and is partly due to the obstruction to the escape of the blood from the uterus. And it is further increased by the congestive hypertrophy which is liable to affect the mucous lining of the uterus in such cases (to be presently explained). In these cases a passive congestion affects the uterus, prevents the free passage of the blood, and the sinuses and veins become loaded therewith. The uterine cavity becomes filled with blood which cannot escape readily enough. Distension of the cavity follows (as described at p. 181), and after a time the collected blood is sud-

<sup>1</sup> Fig. 148 represents an enlarged expanded uterus, such as is sometimes met with in cases of menorrhagia. Cases somewhat similar, the cavity being smaller, are more numerous.



denly expelled in a sort of gush, this process of alternate filling and evacuation of the uterus repeating itself at intervals. When this state of things has been going on for some years the uterus is found in a state of general hypertrophy, the patient not only suffers from profuse loss of blood at the menstrual period, but bleedings are liable to occur at other times, and in some cases the patient is hardly ever free from loss of blood.

Although not a very common occurrence at that age, I have seen some few cases of most severe menorrhagia produced by ante-flexion in *quite young women* at the age of seventeen or eighteen, the hæmorrhage being almost continuous and unchecked by remedies until the real nature of the case was ascertained. And equally I have seen very severe menorrhagia in quite young women suffering from retroflexion.

More commonly the severe cases of menorrhagia due to flexions are met with in women who have had children: the uterus imperfectly contracted after labour has settled down into a wrong shape, and menorrhagia has resulted from the distortion of the uterus thereafter occurring.

*Chronic congestion of the uterus.*—In many cases of menorrhagia or metrorrhagia the uterus is intensely congested. As explained in the chapters on ‘Congestion’ and ‘Flexions,’ this congestion is very frequently associated with flexions. It is in the large majority of cases a mechanically produced congestion, and one of its results is hæmorrhage from the lining of the uterus. One of the effects of chronic congestion of the uterus is to produce a swelling, tumefaction, and undue vascularity of the mucous lining of the uterus. This can be often seen by means of the speculum, so far as it affects the lining of the cervix, at the os uteri, where a light pink is exchanged for a deeply congested, hæmorrhagic appearance. The interior of the *body of the uterus*, however, is lined by a membrane of much greater vascularity than that of the cervix uteri. When the uterus is as a whole greatly congested the lining is, or may be, equally affected. The natural oozing of blood which occurs from this mucous surface during menstruation is thus liable to be increased in amount. The thickness of the lining is increased, and as the epithelial surface is removed (as a part of the natural menstrual process), and it becomes denuded, the surface thus thickened and injected with blood is thrown into folds and projections which assume a villous or fungous-like shape. This is the probable explanation of the fact that such a condition of the uterine surface is met with in some cases of

menorrhagia. The villous projections, according to this view of the matter, are merely hypertrophies associated with great vascularity and passive congestion of the lining of the body of the uterus, and the state of the uterine interior under such circumstances is not indicative of presence of new formations, but simply of an excessively swollen and vascular condition of structures which naturally are to be found there. The anatomy of the lining of the uterus and a knowledge of the changes occurring in this lining during the normal menstrual process naturally suggests the above explanation.

Clinical evidence clearly shows that the cases where most intense and chronic congestion of the uterus exists are cases of severe and chronic uterine flexions. Menorrhagia is by no means present in all cases of severe flexion, but in a certain number of such cases there is very severe menorrhagia. The flexion does indubitably produce the bleeding in very many of such cases ; and the bleeding occurs in consequence (1) of the mechanical impediment to the passage of blood through the capillaries of the mucous membrane. (2) Because of the hypertrophy and abnormal size of the vessels which permeate the mucous lining. According to this view the mechanical hindrance to the efficient circulation in the uterine vessels is the primary evil, and the presence of hypertrophy and vascularity of the mucous membrane the secondary one. Both co-operate in giving rise to hæmorrhage.

A further part of the explanation of the mechanism of bleeding from the uterine interior is the difficulty which the uterus experiences in getting rid of the effused blood. The blood collects in utero, distends it, and hence the area from which hæmorrhage occurs is increased (see chapter on 'Flexions,' p. 181).

The case related at p. 113 is one which carries with it instructive inferences in reference to the etiology of menorrhagia, and particularly in regard to the connection subsisting between (1) chronic congestion, (2) chronic flexion, (3) chronic villous or fungous hypertrophy of the uterine mucous lining, and (4) severe hæmorrhage ; for in this case, when the general congestion of the uterus was diminished (by straightening the uterus), the hypertrophic eminences previously engorged with blood became so much lessened in size that they had almost disappeared, and it became evident that what had been considered as fungous, possibly even malignant, growths from the interior of the uterus were simple congestive swellings of the mucous membrane.

The above is an explanation of the nature of the so-called

*fungosities* of the uterine cavity which have attracted much attention as causes of menorrhagia, but the nature of which has not up to the present time been properly understood.

It is highly important to distinguish these simple hypertrophies from *malignant growths* within the uterus which may also assume the character of fungosities. Severe hæmorrhage may be produced by either simple or malignant growths in the interior of the uterus.

*Defective involution of the uterus.*—This is a cause of menorrhagia. The uterus is large and heavy, and blood is secreted freely from its interior. The condition is very analogous to that of chronic congestion, and, in fact, defective involution not uncommonly passes into one of chronic congestion.

*Abnormal conditions of the os uteri.*—One of the most important of these, as a cause of menorrhagia, is *laceration of the cervix uteri*. I have seen some cases in which profuse menorrhagia was certainly due to this laceration.

*Eversion of the lining of the cervix*, whether or not connected with laceration of the cervix, may produce considerable loss of blood, the everted mucous membrane readily bleeding on friction of the interior against the floor of the vagina. The so-called ‘ulcerations’ of the os are in many cases constituted by the abrasions in question.

*Hypertrophy of the os uteri* is not seldom associated with the foregoing conditions, and bleeding more readily occurs under such circumstances. The condition is important, because it might be mistaken for one of cancerous enlargement.

*Small mucous polypi* growing from the lip of the os uteri often occasion very profuse losses of blood, although they may themselves be no larger than a pea in size.

#### DIAGNOSIS.

The nature of every case must be adjudicated on its own merits. The foregoing account of the etiology and pathology of menorrhagia and metrorrhagia furnishes certain details on the subject. It must be needless to point out that a careful examination of the condition of the uterus and generative passages is essential, according to the methods described in other chapters.

In cases where unusual losses of blood have occurred, an important duty of the practitioner consists in the investigation and examination of the various substances, clots of blood, and the like



which have been expelled. In order to institute a proper examination, an intimate practical knowledge of the normal anatomy of the ovum, and a familiarity with its outward appearance, on the part of the observer, are absolutely essential.

From a variety of circumstances, the substances expelled are frequently difficult of recognition; it is a good plan to place them in water for twenty-four hours, or even longer, at the end of which time they will be in a much more satisfactory state for examination. The importance of adopting this precaution in the examination in cases of suspected abortion it is impossible to over-estimate.

1. *An early ovum.*—If any portion of the body or members of the foetus be found in the mass expelled, there can, of course, be no doubt in the matter; we have to do with an abortion. When no part or parts of an embryo are to be found, we proceed to search for one of the following structures: the decidua materna, or external envelope of the ovum; the decidua reflexa, internal to the latter; the chorionic villi; the umbilical cord, etc.

*Moles.*—An ovum, or some part of it, may remain in the uterus for a very considerable time, growing in an irregular abnormal manner, or just preserving a low form of vitality.

The ‘fleshy mole,’ as it is termed, consists of an ovum between the membranes of which blood has been effused. The blood effused has coagulated, and the result is a mass the parts of which are glued together and separated with difficulty. The presence of organised membranes and chorion villi distinguishes the ‘fleshy mole’ from simple clots of blood, and from other substances presently to be more particularly considered. It must be recollected that the chorion villi do not become developed so as to constitute a placenta until near the fourth month of gestation.

There is another kind of true mole, the ‘hydatidiform’ or ‘vesicular’ mole, a description of which will be given presently.

2. *The placenta.*—The size, shape, etc., of the mass, and the presence of the umbilical cord, would externally indicate it to be the placenta. The expulsion of a retained placenta is, at least when the retention has existed for some time, usually preceded by an offensive discharge; but the placenta has occasionally been discharged apparently fresh, and without signs of decomposition. In cases of abortion at the fourth or fifth month, the placenta may be retained for some time, its removal not having, for some reason or other, been effected at first. Cases are on record which show that the placenta may be retained within the uterus after

abortion for months and even years. An instance in point is quoted by Montgomery from Morgagni.<sup>1</sup> More than one case of the kind has indeed come under my own observation. Meanwhile, its presence in the uterus has generally occasioned severe hæmorrhages. An early placenta would be about the size of a pigeon's egg; later it would be larger.

3 and 4. *Fibrous polypi* of the uterus and *fibroid tumours* are sometimes expelled spontaneously from the uterus. Externally, these bodies might be easily confounded with a placenta, the more especially as the preceding hæmorrhages might be considered evidence of abortion having occurred. Polypus of the uterus and fibroid tumours frequently produce abortion; and in certain cases abortion may occur in the first place, and the expulsion of the polypus which gave rise to the abortion in the second. This sequence happened, as I had reason to know, in a case under the care of a gentleman in the country; and the polypus which came away was considered, until after it had been more carefully examined, to be the placenta. The structure of a polypus or of a fibrous tumour differs widely from that of the placenta, the former presenting a fibrous texture, generally dense, and sometimes very firm; but now and then, in the case of a polypus, more spongy and loose. The insertion of the umbilical cord would be, of course, wanting. Fibrous masses containing fatty matter within them, which I believe are instances of *fatty degeneration* of fibrous tumours or polypi of the uterus, are sometimes spontaneously expelled, as in a case which I have placed on record,<sup>2</sup> or solidified by *calcareous matter*. Generally, we find a previous history of 'frequent and severe hæmorrhages' when these uterine outgrowths have been expelled. The spontaneous expulsion here alluded to is not a frequent termination of their history. Masses of cancerous growths, in some rare instances, slough away and appear externally. The cancerous disease is usually far advanced in such cases, and a digital examination would reveal the origin of the expelled body.

5. *Coagula of blood* (blood-polypi).—Coagula may form within the uterine cavity in connection with uterine hæmorrhage of all kinds; after labour, in consequence of the presence of polypi, cancer of the uterus, profuse menstruation, etc. The uterine cavity is not, as a rule, very tolerant of the presence of clots; and for this reason they do not generally remain sufficiently long to have become firm and dense. They are frequently connected with

<sup>1</sup> *Op. cit.* p. 259.

<sup>2</sup> *Trans. of Path. Society*, vol. xi. p. 173.

previous abortions. The accompanying drawing is one of a 'Polypoid Hæmatoma' following an abortion at the second month. The remains of the chorion structures attached to the uterus form the pedicle of a mass consisting of blood-clot, the whole assuming a polypoid form.<sup>1</sup> When the coagula are tolerably recent, they are easily broken down under pressure, or after soaking in water. Fibrous organised bodies are not to be broken up in this manner. When polypi of the uterus are present, coagula sometimes come away having a circular form like segments of rings. The polypus at the same time excites hæmorrhage and prevents the escape of the blood; and the rings in question are thus formed. Coagula

FIG. 149.



not recent may present a tolerably firm, dense, greyish, fibrinous-looking surface. The want of organisation in the mass, the presence of blood-corpuscles, would assist in the diagnosis of the nature of the substance. The centre of the mass, moreover, generally exhibits a clot of a darker colour, comparatively unaltered, which was the original nucleus of the formation.<sup>2</sup>

In respect to the size and shape of clots of blood expelled from the vaginal aperture, some peculiarities are sometimes noticed. Thus, in a case which fell under my observation—that of the sister of a medical man—a large clot of blood, having the size

<sup>1</sup> Copied from Virchow's *Krankhaften Geschwülste*, Band. i. p. 146.

<sup>2</sup> See an account of some specimens reported on by myself in *Trans. of Path. Society*, vol. xv. p. 169.



and shape of the vagina, had been occasionally expelled after much straining and pain, at the menstrual periods. It was found that the aperture of the hymen was excessively small, and, the discharge of blood being more profuse than usual, an accumulation and coagulation of the same in the vagina had occurred.

MEMBRANOUS FORMATIONS.—*Bodies more or less resembling 'skin'* may be conveniently considered together under this designation. The skin-like substances in question may have their origin in the vagina or in the uterus.

1. *Exfoliations from the vagina*.—Under certain circumstances the lining membrane of the vagina separates in the form of thin translucent flakes, which sometimes come away in great quantities. The flakes in question are composed of the scaly epithelium of the vagina, and under the microscope exhibit the well-known appearances of this form of epithelium. It is necessary to place them in water in order to render obvious the characters of these exfoliated products.

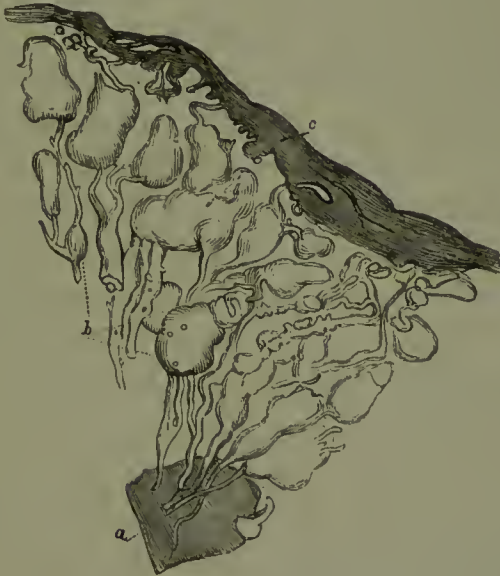
2. *The dysmenorrhœal membrane* ('menstrual decidua'—Farre).—This is an exfoliation of the lining membrane of the uterus—a sort of skin occasionally expelled from the uterus, independently of conception, after a catamenial period, and exhibiting a certain degree of resemblance to the decidua lining the uterus during pregnancy. The membrane is the mucous membrane of the uterine cavity, hypertrophied and cast off (see chapter on 'Menstruation,' p. 15). Under the influence of certain conditions, the nature of which is at present not perfectly understood, but which probably have the effect of setting up a sort of chronic inflammation of the lining membrane of the uterus, the mucous membrane of the uterus becomes sometimes greatly more thickened than usual, and being, in accordance with the ordinary rule, thrown off, it is presented externally. This is what appears to take place in these cases of membranous dysmenorrhœa. The membrane in question is smooth internally, rough and slightly flocculent externally. When thrown off in a single piece, the membrane presents three apertures, corresponding to the apertures communicating with the uterine cavity, and is of a pyramidal shape. It is expelled during the catamenial flow, which, as a rule, is more profuse than usual. It is unlike the vaginal exfoliations just alluded to, being very much thicker. The distinction of this dysmenorrhœal membrane from the decidua of an early ovum might, under certain circumstances, be difficult, as already stated, viz., when the supposed decidua is unaccompanied by any part of the chorionic structure.

The concomitant circumstances will assist in the diagnosis; thus the 'dysmenorrhœal membrane' is not expelled at one catamenial period only, but on successive occasions; whereas, in the case of an abortion, the same thing is not likely to occur, or, at all events, with the same marked periodicity (see chapter on 'Dysmenorrhœa').

3. *The covering of the early ovum.*—Portions of the decidua materna, the decidua reflexa, the chorionic sac, etc., may come away in the form of membranous substances.

4. *Exfoliations from the bladder.*—The coats of the bladder have in rare instances been expelled; in cases related by Mr. Spencer Wells and others, the whole lining of the bladder appears to have sloughed and to have come away by the urethra.

VESICULAR BODIES.—*The hydatidiform or vesicular mole.*—Little bladder-like substances, singly, or connected in series like

FIG. 150.<sup>1</sup>

beads, may be expelled from the uterus. These bodies were formerly considered to be hydatids formed in the uterus. They really result from certain alterations of the chorion villi, and they are always the result of conception. The embryo perishes at an early period, and the chorion villi continuing connected with the uterus maintain a slow growth, the *development* being arrested. The vesicular bodies are thus the result of dropsical swelling of the chorion villi. It appears that the period of pregnancy during

<sup>1</sup> The drawing is a magnified representation of an early stage of the hydatidiform degeneration of the ovum, and exhibits very accurately the relations of the vesicular bodies, *b*, to the chorionic membrane, *a*, and the decidua serotina, *c*. (For further illustrations, see my papers in *Obst. Trans.*, vols. i. and ii.)

which the chorion villi may take on this peculiar form of degenerative growth is limited, probably not later than the middle or end of the third month. If the embryo perish after the chorion villi have become pretty intimately connected with the decidua serotina, but before the placenta has become formed, while the villi are allowed still to retain a certain degree of connection with the uterus, they may continue to grow; but *development* is arrested, and the bladder-like bodies are the result; such, at least, is my explanation of the formation of these bodies. Some eminent authorities consider it a disease of the villi *ab initio*.

With the presence of the vesicular mole watery discharges are occasionally associated. The mole in question may attain a considerable size, and may remain several months in the uterus, a few of the bladders from time to time breaking and discharging fluid from the os uteri. The mass may come away altogether, or clusters of the vesicles may be expelled at intervals.

*True hydatids* may in very rare instances be expelled from the generative passages. They originate in the abdomen, bursting into this cavity from the liver; and they may penetrate through the uterus or into the vagina. True hydatids are closed sacs one within another; while the vesicular bodies resulting from chorionic transformation are arranged in a series like beads on a string, with slender peduncles or intervening connecting portions. The well-known 'hooklets' are usually found when the cysts are really of hydatid origin. I have met with a case in which, death having occurred, several hydatid cysts were found in the abdomen, the pelvis, etc., and, had life been prolonged, some of these might have burst into the vagina or uterus. In the case in question, the patient was a young unmarried woman. I have also met with one case of true hydatids of the uterus, in which the organ contained bodies of undoubtedly hydatid character.<sup>1</sup>

FACTITIOUS BODIES.—Lastly, the observer must be cautioned as to the occurrence of cases in which, for a variety of reasons, women exhibit substances which they are desirous of leading the practitioner to believe have been expelled from the vagina. The careful examination of the bodies in question is, or should be, sufficient always to enable us to detect the fraud.

<sup>1</sup> *Obst. Trans.* vol. xii. p. 237.



## GENERAL TREATMENT.

If the blood be impoverished, the patient must be strengthened, the general health improved by careful hygienic measures, by good food, pure air, exercise, etc. Any special predisposing cause, the detection of which may require very careful scrutiny of the habits and previous history of the patient, must be removed. If, for instance, the patient be living in a malarious neighbourhood, the residence must be changed. In cases where there is great torpidity of the system, congestion of the abdominal viscera, a loaded state of the bowels, and unhealthy state of the secretions generally, what may be termed a derivative plan of treatment, consisting in administration of brisk purgatives and such medicines as are known to excite action of the liver and chylopoietic organs generally, is effective. In cases of great debility iron is necessary. A mixture containing very small doses of sulphate of magnesia, with a little dilute sulphuric acid and syrup, is exceedingly useful during the days of the profuse catamenial flow.

In cases due chiefly to general debility, from whatever cause, tonics and purgatives must be given together. For such, a colocynth and rhubarb pill twice a week, with iron and sulphate of magnesia in small doses, two or three times a day, may be recommended. To promote the action of the skin, to insure regular action of the bowels, and to improve in every possible way the general health of the patient, is to do pretty nearly all that can be done in the general treatment of ordinary cases of profuse menstruation not dependent on some physical derangement of the uterus.

The general treatment is particularly important in cases of women who have resided in tropical climates, such as India. The uterus and pelvic organs generally are found in such cases in a state of chronic congestion, there is profuse menstruation, together with leucorrhœa, and not seldom flexions are present. The flexion, of course, requires special treatment, but the general condition of the patient requires in such cases careful management. The only means of successfully dealing with these cases is to carefully supervise the performance of the functions generally, and especially those of menstruation, fecundation, etc., and to remove, by appropriate treatment, the diseased condition of the uterus, which is the cause of the symptoms.

When the circumstances of the patient admit of it, and the case is an obstinate one, great advantage will be derived from

residence at a watering-place, where, for a variety of reasons, hygienic measures are better enforced and more easily carried out than at home. The remedies considered necessary, aperients, tonics, etc., are more efficacious also when administered in the form of mineral water. In selecting the spa, regard must therefore be had to the peculiar condition of the patient, and the cause of the menorrhagia (see 'Treatment of Chronic Congestion of the Uterus').

The external employment of baths is of service. The daily use of the sponge bath is strongly to be recommended, the skin being rubbed all over by means of a rough towel for some minutes afterwards. The Turkish bath may be used in the treatment of certain cases of menorrhagia, in which there is defective activity of the skin, and in which sufficient bodily exercise cannot, for some reason or other, be taken. Experience has given me reason to think that cold hip baths are not usually to be recommended as a remedy for menorrhagia, although I was formerly inclined to consider them serviceable. Where hip baths are employed the water used should be either warm or tepid.

In all cases where the uterus and pelvic organs are in a congested condition, the use of the vaginal douche is of most valuable assistance in the treatment. The means of applying this remedy will be found described in the chapter on 'Leucorrhœa.'

It is of extreme importance to regulate the conduct of the patient at the menstrual periods. For two or more days previous to the expected period, and during the time at which the discharge is going on, the patient must be directed to remain as quiet as possible, and chiefly in the recumbent posture. The clothing must be light, the room should be cool. The bowels must be kept regularly open, and stimulant articles of food, as well as excessive eating and drinking, must be avoided. Sexual intercourse is to be prohibited. By adopting these simple precautions, much will be effected in diminishing the amount of the discharge.

Dr. Chapman has introduced a method of treatment which has in some cases proved of service in cases under my own observation, viz., the application of cold to the spine by means of ice-bags. The cold acts directly on the spinal cord and indirectly on the uterus, leading probably to a contraction of the whole organ, and thus lessening the hæmorrhagic discharge.

In some few cases the loss of blood has been, or continues to be, so profuse that it is necessary to arrest it in a more summary manner; the patient has become so reduced that a further loss of

blood is likely to be attended with grave inconvenience. For the treatment of this form of profuse menstruation, the general preventive means hitherto spoken of are applicable, and their application is most important; but something more is needed. In extreme cases it is necessary to arrest the further flow of blood in a mechanical manner—*i.e.* by plugging the vagina. This will be best effected by inserting, by means of the duck-bill speculum, a piece of lint dipped in infusion of matico or tincture of sesquichloride of iron, or, which is still better, a saturated solution of perchloride of iron in glycerine, and one or two yards of wetted bandage, carefully packed in the vagina. This form of plug is very easily managed, as it admits of a portion, or the whole, of it being easily withdrawn. The bandage should be previously wetted by being squeezed out of cold water. Dr. Henry Bennet strongly recommends the plugging of the cervix uteri itself in order to restrain the hæmorrhage when very profuse. The patient must be directed to remain in the recumbent posture; cloths dipped in cold water should be laid over the pelvic region and removed and reapplied from time to time; or a cold wet napkin may be flapped upon the abdomen, so as to produce a sudden shock. Injection of cold or iced water into the rectum is also a most valuable means of arresting the flow of blood in bad cases of this kind. The object is to produce contraction of the uterus, for that organ is relaxed, congested, and in a condition very much resembling that which is present after labour.

The internal remedies to be made use of are, firstly, those which are known to induce contraction of the uterus; secondly, those which are known to have the power of arresting hæmorrhage—styptics, as they are termed. Ergot of rye and ipecacuanha have been found serviceable in cases of *post-partum* hæmorrhage; and they are applicable in the treatment of the severer forms of profuse menstruation also. I have myself had great success with the ergot, when all other remedies had markedly failed. A decoction of the fresh powder should be taken three times a day. Styptics are frequently found very serviceable; of these matico in combination with tincture of iron, or the latter alone in large doses (thirty to forty minims), are strongly recommended. Matico has proved exceedingly efficacious in some few cases in which I have employed it. Gallic acid and diacetate of lead may be also employed. Opium is a remedy which has been highly extolled in cases of profuse menstruation, as also in hæmorrhages generally, but it does not appear to be adapted for chronic cases. Attention



has been directed to digitalis administered internally as of peculiar efficacy in the treatment of profuse menstruation, but the results obtained in cases where I have tried it have not been altogether encouraging. In passive menorrhagia, Beau recommends rue and savin, in doses of rather less than one grain each.

In severe cases of profuse hæmorrhage, while measures are being taken to arrest the discharge of blood and to prevent further hæmorrhage, it is necessary to support the patient by administering stimulants and nourishments internally. The requirements in individual cases vary according to the urgency of the symptoms. Brandy and beef-tea or strong soup must be given frequently, but in small quantities at a time. It is possible to conceive a case—indeed, such are on record—in which transfusion may be necessary, and where the patient's life may be prolonged, if not saved, by timely recourse to this procedure.

It does not very often happen that a patient perishes from hæmorrhage due to simple profuse menstruation, but there are many cases where life, if not abruptly cut short, is materially abbreviated by the long-continued weakness and prostration thereby induced.

#### LOCAL TREATMENT.

The treatment is palliative or curative, one or both, according to circumstances. The case may or may not admit of absolute cure. When not curable, much may often be done to diminish the loss of blood at the menstrual periods by giving the patient directions as to her conduct during the time in question. Thus, in cases of cancer, cases of fibrous tumour, cases of flexion, etc., where it may not be proper, for a variety of reasons, to resort to more radical measures, rest, the horizontal position, careful diet, and the systematic application of this system of treatment at and during each successive menstrual period, will do much to lessen the amount of the loss of blood. It is in these cases also that we occasionally find it necessary to apply measures for at once arresting the discharge of blood, and which have been already pointed out. The discharge of blood may, under such circumstances, be such as to amount to a regular hæmorrhage, and must be treated as such; but, whatever be its cause, the amount of the discharge may be always very considerably reduced by the preventive and palliative measures which have been already alluded to.

With reference to the *curative* treatment of these cases of unusual discharge of blood from the uterus, and which are connected with the presence of organic or other disease, or in those very numerous cases in which flexions are responsible for the hæmorrhage, etc., we must be guided by the circumstances of the case. The proper radical treatment of the various pathological conditions of the uterus, etc., are elsewhere discussed under their proper heads. At present, some general observations will be made in reference to the treatment of these cases, so far as the hæmorrhage is concerned.

The loss of blood produced by the presence of organic or other disease of the uterus is often such as to necessitate the absolute removal of the cause of the discharge in order to save the patient's life. This is more particularly the case where polypus of the uterus is present. A minute mucous polypus growing just within the os uteri has been known to give rise to severe hæmorrhage; a pedunculated growth of this kind may occasion more hæmorrhage than a polypus of considerable size; and hence operations are demanded in order to restrain the hæmorrhage, with varying degrees of urgency in different cases. Hæmorrhage is not generally the only reason for deciding on operative or other measures for their removal.

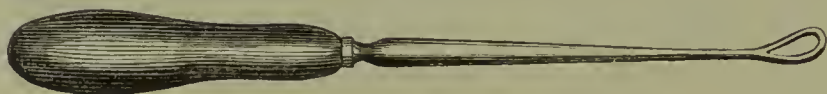
In some cases our decision as to treatment will be affected by this consideration. The patient may be fast approaching the end of menstrual life, and it may be expected that the hæmorrhage, with the profuse menstruation, will disappear at the end of a short period. Such a view of the case may present itself to us where there are fibrous tumours in the uterine wall, projecting, perhaps, into the cavity of the uterus, and giving rise to the symptoms now under discussion. In many such cases, symptoms which, during menstrual life, are of great severity grow less, and the patient, while retaining her disease, finds the inconveniences for the most part vanish with the arrival of the last menstruation.

The severe hæmorrhages produced by fibroid tumours not seldom appear to depend to a great extent on the obstruction to escape of blood from the uterus. Hence the operation of incising freely the cervix uteri is serviceable in certain cases.

In cases where there is reason to believe that abortion has, or may have, recently occurred, the first thing to be done is to ascertain whether any portion of the ovum or of its membranes remain in the uterus, and if anything be there found to remove it. Experience has shown that the retention within the uterus of a very

small portion of membrane is sufficient to give rise to considerable and continued loss of blood. Where the os uteri is so closed that the finger cannot be easily introduced, it must be slowly and carefully dilated. The best method of dilating the os uteri for this and other purposes will be particularly described in the chapter on 'Dysmenorrhœa.' The consideration of the treatment appropriate in such cases, however, falls more properly within the province of midwifery. It is sufficient here to insist on the necessity for completely emptying the uterus to check the hæmorrhage proceeding from this cause.

Of late years the practice of applying strong caustics to the interior of the uterus has been rather extensively followed. Applications were at first limited to the tincture of iodine, but undiluted nitric acid has been frequently used for the purpose. Again, it has been recommended that the interior of the uterus should be scraped by means of an instrument for the purpose—a curette—the object in both methods of treatment being to burn

FIG. 151.<sup>1</sup>

away the surface of the uterine lining, or to remove it. These methods of treatment have always appeared to me unnecessary, and it has been shown by reports of cases which have been published that occlusion of the os uteri and destruction of the normal uterine functions have followed these procedures in some cases.

In regard to the injurious effects of the scraping process Dr. Emmet says that he has known peritonitis, cellulitis, pelvic abscess, and even death occur on removing growths from the interior of the uterus by means of the curette, and he approves of Dr. Thomas's blunt copper-wire curette, which compresses the lining without removing it.

In regard to the injurious effects of the cauterising process, Dr. Wigglesworth<sup>2</sup> recorded a case in which occlusion of the os, and suppression of menstruation occurred as a result of application of fuming nitric acid to the whole interior of the uterus, and he forcibly directs attention to the sterility necessarily so produced. In another paper he records two more cases in which the same result occurred. Dr. Playfair<sup>3</sup> considers that Dr. Wigglesworth's

<sup>1</sup> Fig. 151 represents Dr. Thomas's curette.

<sup>2</sup> *Obst. Journ.* vol. lxx. p. 622.

<sup>3</sup> *Ibid.* vol. lxi. p. 694.



case teaches necessity for caution in the use of nitric acid. He prefers carbolic acid in a tolerably concentrated form. Dr. Edis, writing on the same subject, states that in two cases he had observed somewhat similar results to those above related.

As supporting the views above given as to the true explanation of these cases may be cited a paper by Dr. G. H. Lyman.<sup>1</sup> He advocates the dilatation of the cervix uteri for the cure of uterine hæmorrhage. In four cases dilatation was performed for the purposes of diagnosis, and so marked was the relief from the hæmorrhage that his attention was aroused to dilatation as a means for arresting the hæmorrhage. Dr. Lyman considers that it acts by relieving the constriction at the internal os, and thus relieves the congestion of the tissues above that point.

For Dr. Thomas's opinion on the subject see chapter on 'Leucorrhœa.'

The so-called fungosities which are supposed to be removed by the procedures above mentioned appear to be merely the unduly vascular mucous membrane. It is more rational to endeavour to reduce this vascularity than to destroy the membrane. As to the efficaciousness of this cauterising method of treatment it does not appear that the results are very encouraging, the operation requiring, according to Dr. Thomas (see his last edition), frequent repetition before a cure can be effected.

When cauterising applications are made to the interior of the uterus, it is necessary, in the first place, to dilate the cervical canal. If strong nitric acid be applied, an ebonite cervical speculum, as devised by Dr. Atthill, is required, through which the probe carrying the acid can be introduced. It has been found to be dangerous to inject caustic fluids into the uterus without previous free dilatation of the cervical canal; hence, if tincture of iodine or other such fluid be so employed, the previous cervical dilatation is imperative.

The general conclusion to be drawn from the facts which have been collected on the subject is that intra-uterine medication for the relief of hæmorrhage is so far good that it implies an opening, or indeed a dilatation, and certainly a straightening of the uterine canal. One effect it certainly has, though it does not seem to have been contemplated by those who have practised it (with the exception of Dr. Lyman), viz., that it promotes the 'drainage' of the uterine cavity. I have always considered this latter indication

<sup>1</sup> 'Transactions of American Gynæcological Association,' in *Amer. Journ. of Obst.* vol. x. p. 526.

as a most important one, and the practical inference is that the dilatation or straightening of this canal will be found to be all that is required in the majority of cases.

A final word must be added in reference to the efficacy of removal of the ovaries, by the operation now known as Battey's operation, for the cure of menorrhagia. Cases do occasionally present themselves in which the tendency to hæmorrhage is so great from presence of fibroid growths in the uterus, and possibly in some other cases, that this operation seems justifiable. (See further remarks on subject of this operation in chapter on 'Ovariotomy'.)

## CHAPTER XXXIV.

## DYSMENORRHŒA.

Meaning of the Term—PATHOLOGY—Essentially a Symptom indicative of Obstruction to Escape of Menstrual Fluid—Seat of the Obstruction, mostly at the Internal Os Uteri—*Modus Operandi* of Obstruction at this Position—Severity and Intensity of the Pain—Nausea and Vomiting accompanying Dysmenorrhœa—Causes of Obstruction at various parts of the Canal of the Uterus enumerated—Inter-Menstrual Dysmenorrhœa—Membranous Dysmenorrhœa.

Pain during Menstruation due to other Causes than Obstruction to Escape of Menstrual Fluid—Disordered Ovulation—Rheumatic Diathesis—Neuralgia.

TREATMENT.—General remarks—Rectification of Shape of Uterus—Dilatation—Incision of Canal—These Methods Compared—Their Applicability to the various Cases pointed out—Postural Treatment—Palliative Treatment—Internal Mechanical Treatment—Treatment of Imperforate Os Uteri—Treatment of Membranous Dysmenorrhœa.

THE term ‘dysmenorrhœa’ has been long employed to denote the presence of pain or difficulty, one or both, attendant on the performance of the function of menstruation.

Hardly two patients suffer alike during menstruation; and we see a regular gradation between cases in which there is very slight suffering, and others in which the agony is such as to be almost unendurable. The pain also varies in its position, but it is for the most part referable to the uterus; and, in the cases where there is most pain, the pain is generally identical in position with that of this organ. Pains of various degrees of intensity may be felt at other parts of the body; but they are added, so to speak, to the other—the essential pain—which is situated in or about the pelvic region.

What is the relation of the pain to the flow of the menstrual fluid? This, being the vital point of the whole question, demands our earnest attention.

We find in practice several variations in respect to the manner in which these two things, the pain and the flow of the fluid, are related one to the other. In some cases it will be found that the menstrual fluid escapes from the uterus from the first; the patient having little, but only a little, to complain of during the whole



menstrual period, while in other cases, on the contrary, the appearance of the menstrual fluid is delayed for a certain time, and in the meanwhile the patient suffers more or less severely from pain; the discharge appears, and the pain thereupon quite or almost completely ceases. In other instances the pain is present intermittingly more or less during the whole of the period.

#### PATHOLOGY.

I hold the belief that dysmenorrhœa is to be regarded as a symptom indicating, in almost every instance, an impediment to the escape of the menstrual fluid from the uterus, and this view of the subject, which was put forward in the first edition of this work (1863), has received very general (though not unanimous) adoption by several other writers, although quite recently attempts have been made to revive in a modified shape the older views entertained on the subject. Before the existence of flexions of the uterus was recognised, the sole ‘obstructive’ cases of dysmenorrhœa were those in which the external os uteri was found small and narrow. But the ‘obstructive’ cases, it can now be shown, are much more numerous, and they include very many instances where the *internal* os uteri is the seat of obstruction to the escape of the menstrual fluid.

Pain during the menstrual period is not exclusively due to obstruction to escape of menstrual fluid; for, as will be mentioned presently, there are cases in which the source of the discomfort present is to be sought elsewhere. But the ‘obstructive’ theory applies widely and generally to most cases, those not coming within it constituting the exceptions.

There has been considerable dispute as to the *seat of the obstruction* in cases of dysmenorrhœa. On the one hand, the *external* os uteri is still held by some authorities (Dr. Barnes, for instance) to be the almost exclusive seat in cases where obstruction exists; on the other hand, the *internal* os uteri is held by other and numerous authorities to be the point where the obstruction occurs.<sup>1</sup>

Opinions so widely differing and held by equally eminent

<sup>1</sup> Many of the various arguments and statements put forward by those who have in public discussed this subject will be found in vols. vii. and viii. of the *Obstetrical Transactions*, in the reports of the discussions on the subject at the meetings of the Obstetrical Society of London. See also a paper in the *Obstetrical Transactions*, by Dr. Barnes (vol. xiv. p. 108), on the ‘Essential Cause of Dysmenorrhœa.’

authorities may seem difficult to reconcile. The point is certainly of the greatest practical importance. The circumstance that in many cases of dysmenorrhœa the internal os allows a tolerable-sized sound to pass through it, has been held by some eminent practitioners (Dr. Bennet, Dr. Tilt, and others) to prove that there is no stricture at this point. But the stricture may nevertheless virtually exist at the internal os, in consequence of flexion of the canal, the flexion acting as an obstacle to menstruation, but not preventing, necessarily at least, the passage of the sound. When the uterus, as is often the case under such circumstances, is unduly soft, the sound may open out the flexion as it passes in. Here lies one source, at least, of the apparent discrepancy. The least bending of the uterus at the internal os will thus cause obstruction. I agree with Dr. Marion Sims, Dr. Savage, Dr. Greenhalgh, and others, in regarding the internal os as by far the most common seat of obstruction. The cause of such obstruction at the internal os is, according to my experience, almost invariably a flexion of the uterus. Other causes may give rise to obstruction, but the percentage of such cases is small. The curve described by the uterus in cases of flexion is, it must be remembered, not always the same. The flexion may be seated *below* the internal os, at the middle of the cervix, in fact; here the obstruction is not seated, of course, precisely at the internal os, but at a point below that. These latter cases are for the most part those described as 'conical' cervix, and they are not unfrequently associated with dysmenorrhœa. But I do not think they occur so frequently as Dr. Barnes believes.

The essential part of menstruation, so far as the uterus is concerned, appears to be growth, thickening, and increase of vascularity in the mucous membrane lining the body of the uterus; the tissue of the uterus itself being also congested, and the venous plexuses situated around this organ being at this time filled and gorged with blood. The menstrual blood is poured out by the mucous membrane of the body of the uterus. At the point where the cavity of the body of the uterus and the cervical canal join, the canal is narrow; so narrow, indeed, that in women who have not borne children it usually admits easily only an instrument having a diameter of an eighth to a quarter of an inch. Hence it follows that, in a by no means insignificant proportion of cases, the internal os uteri, as it is termed, is so narrow that very little is needed to close it altogether, or at all events to so close it that the escape of fluid from the uterine cavity is rendered difficult.

Moreover, during the menstrual period, fluid containing minute shreds of broken-down membrane has to be discharged from the cavity of the body of the uterus. The internal os is the central and smallest part of the uterine canal. It is surrounded by the firm, resisting, fibro-muscular tissues of the uterus, the uterine walls being at that situation, as already remarked, rather thinner than elsewhere. In the ordinary course of things, the menstrual products pass through this narrow aperture slowly, but continuously, the size of the passage being sufficient to drain the uterine cavity and discharge the fluid as fast as it is poured out from the lining of the body of the uterus.

The patency of a tube is greatest when it is completely circular in shape. Flatten the tube, and at once its calibre is diminished. Carry the flattening process far enough, and we extinguish the tube altogether. It so happens that the internal os uteri—the narrowest part of the tube—is coincident with the middle of the uterus, the situation at which, in cases of flexion-distortion, the bend is most usually found to occur. The physical relations of the parts are such that a certain flattening of the canal is inevitable when the uterus is bent at this situation. The flattening occurs from before backwards. It varies in degree, according to the degree of the flexion and other circumstances, and it is demonstrable, from anatomical considerations alone, that flattening and consequent impairment of the patency of the canal must inevitably occur when the uterus is decidedly flexed, and thus distorted. This is so obviously true that it seems almost unnecessary to insist upon it. In figs. 152 and 153, representing respectively ante-flexion and retroflexion, the manner in which the uterine tube becomes compressed is rendered evident.

But we may go a step further. It is probable that during menstruation the internal os uteri is capable of becoming to a certain extent dilated so as to more readily allow of the escape of menstrual products. It is believed by some that the internal os uteri has a regular sphincteric action, expanding and contracting according to circumstances. It seems probable that in a state of perfect health no such expansion is required to allow of escape of menstrual products; but it is quite certain that such expansion is required if the menstrual *débris* be unnaturally solid or bulky; and it is quite possible that the internal os does undergo expansion to a certain extent, even in less abnormal cases. But I would direct attention to the fact that, if the uterus be decidedly bent, such expansion of the internal os must be very materially inter-



ferred with. The tissues around the internal os are necessarily compressed and rendered harder and more resisting by the mere fact of the existence of the bend. The flexion occasions not

FIG. 152.



FIG. 153.



merely a flattening of the canal, but a condensation of the uterine tissues in the neighbourhood, such as would directly and forcibly resist any expansion and dilatation of the tube. The patency of the uterine tube, under ordinary circumstances, is in short,

dependent on the uterus preserving its proper form, and thus allowing the canal to remain circular in shape.

Stricture of the internal os uteri has been very frequently assumed to be present when the canal was simply very much bent at that point. The condensation and hardening not unfrequently present around the narrow portion is undoubtedly often great in long-standing cases, and a veritable stricture not seldom exists. But at first it is not so, the canal admitting of easy passage of the sound if the point be only directed properly and in conformity to the bend of the uterus which is present. All cases of dysmenorrhœa are not due to flexion, but the vast majority of them come under this category: marked dysmenorrhœa will, unless in a very few and exceptional cases, be found associated with undoubted flexion of the uterus.

In a very interesting paper Dr. Herman<sup>1</sup> records observations on 111 patients 'under treatment for local contagious disorders,' his object being to determine whether painful menstruation is more common in women who have acute flexions of the uterus than in others. He found that of

43 cases where the uterus was straight	12 had much or bad pain	} 29 per cent.
14 cases of slight ante flexion . . . 5	„ „	
30 cases flexion a right angle . . . 9	„ „	} 30 per cent.
23 cases flexion an acute angle . . . 7	„ „	

—thus proving, as Dr. Herman considers, that the degree of bending has little influence on the severity of the pain.

Objections to the validity of these conclusions obviously suggest themselves. One principal objection to my mind is that no distinction is made as to the softness or hardness of the uterus, in the above cases. This would affect the question materially. If the uterus were very soft, an acute flexion might not necessarily produce pain during menstruation, for the uterine congestion then present might straighten it. I have known this to occur. Again, flexion might be present during menstruation and not at other times, and would thus escape notice. Further, the degree of hardness present is important, inasmuch as an acutely flexed uterus which had become hard would be more likely to occasion severe dysmenorrhœa. One most important reason for contesting the validity of the conclusions drawn by Dr. Herman from his cases is that, having particularly devoted attention to observations as to the effect of treatment of uterine flexions on the dysmenorrhœa so often associated with them, I am unable to recall to mind a case in

<sup>1</sup> *Obst. Trans.* vol. xxiii. p. 217.

which the dysmenorrhœa was not markedly relieved if not completely cured by measures directed to the straightening of the uterine canal. In cases of ante flexion causing dysmenorrhœa, I have used the cradle pessary with unquestionable benefit for many years past.

Here may be mentioned also a paper by Dr. Godson<sup>1</sup> 'On Spasmodic Dysmenorrhœa associated with Sterility,' in which he proposes to drop the term 'obstructive,' as he knows no evidence to prove that there is a want of patency of the cervical canal. But Dr. Godson treats his cases nevertheless by dilating bougies, whereby it would seem to be implied that something of the nature of an obstruction exists at that part of the canal subjected to the dilatation. Dilatation so employed is synonymous with straightening, and it is indeed a very efficacious means of straightening the uterine canal. Spasmodic action of the fibres surrounding the internal os might give pain, but it would also possibly occasion obstruction to escape of menstrual fluid, and thereby set up spasmodic action of the *whole of the fundus*. Supposing that we start, therefore, from the hypothesis of cervical spasm as a cause of dysmenorrhœa, we appear to be conducted to the 'retention' view. It has been asserted that the sound can be easily passed into the uterus during the menstrual flow, and while the patient is suffering, but this by no means proves absence of obstruction to escape of fluid or menstrual *débris*, for the uterus may be so much flexed as to create obstruction, while the sound may be made to enter, *straightening the canal in its passage*.

Why, it may be asked, do we find that many cases of dysmenorrhœa are relieved by simple observance of the recumbent position during the period? Simply because the existing flexion is thereby somewhat diminished, the canal is a little straightened, and the escape of the uterine contents is thus rendered more easy. The pain which accompanies difficult menstruation is due to *the existence of an impediment to the escape of the fluid*. The pain appears to be partly due to the distension of the uterine cavity, causing compression and tension, and congestion of the body of the uterus, but chiefly to actual muscular contraction of the uterine walls; in fact, to a 'pain' similar to those witnessed in parturition, though on a smaller scale. The body of the uterus contracts, and in the end generally succeeds in expelling its contents. In so doing, the internal os uteri must become dilated, in order to allow of the passage of fluid or the *débris* of membranes or

<sup>1</sup> *Obst. Trans.* vol. xxiii.



clots. In cases of flexion, when the malady is not of very long duration, the contraction of the uterus seems to have a straightening effect on the uterus, and when this occurs the canal is thereby opened to a certain extent, and the uterine contents escape. But in severe or long-standing cases the circumstances are such that the uterus has no power of straightening itself, and then we find that the process of emptying the uterus is a very slow one; the pains recur from time to time with little relief, and the catamenial period is both protracted and painful. In cases of the latter description, a frequent phenomenon is the abrupt cessation of the flow for a certain time—a few hours or longer—after which the pain and discharge again recur. A further phenomenon, traceable to the same cause, is a certain dilatoriness in the appearance of the discharge. The fluid observed at first is very slight in amount, or there may be none at all for the first day or two, during which time, however, pains are more or less frequent; also a protraction of the period, together with alteration in the character of the discharge from red to brown, and later on to a still lighter discharge, evidencing that the retained contents of the uterus are now mixed with a fluid of a non-sanguinolent character.

In an extremely able article ‘On the Polar Divergence of the original Natural Forces in the Womb at the time of Pregnancy, and their Mutual Exchange at the time of Labour as a Contribution to the Physiology of Pregnancy and Labour,’ Dr. Champneys<sup>1</sup> has recently revived a doctrine enunciated by Reil in the ‘Archiv. für Phys.’ 1807.

The substance of Reil’s argument is that in the unimpregnated uterus the forces stand in equipoise. When impregnation occurs the expansive force obtains the advantage first in the fundus, from thence farther and farther through the whole substance, driving the contractile force towards the opposite pole, until this latter, driven towards the extreme point, springs over from the neck to the fundus, and at this moment gives the signal for the commencement of parturition.

‘The contractile force,’ says Reil, ‘more and more pressed back from the fundus towards the opposite pole, takes refuge in the extreme point of the neck, until it is even here overcome by expansion, which mostly happens with one bound and in a moment of time, as I shall show by examples. At this moment follows the change of the poles in the magnetic line.’ Then follows the labour pains, during which the plus of contraction lies at the

<sup>1</sup> *Obst. Journ.* No. 82, Jan. 1880, p. 609.

fundus and the plus of expansion at the neck. After the end of the labour the oscillations cease, contraction possesses itself again of the whole substance of the uterus. Reil adduces a case of abortion at the third month, where the cervix, which had been closed, hard, and narrow, became soft and expansible where a moment before all had been still hard and inexpandible.

Dr. Champneys proceeds to apply these doctrines of uterine polarity to the phenomena observed in dysmenorrhœa and menorrhagia. Thus, he mentions a case of menorrhagia in which, after dilatation by a series of bougies up to No. 18 size and administration of ergot, relief was obtained. 'Whatever was the cause of the frequent menstruation in this case,' says Dr. Champneys, 'it seems that dilatation of the cervix altered the conditions and restored the natural rhythm, I believe by the operation of Reil's principle.' Again, in reference to the so-called cases of 'spasmodic' dysmenorrhœa, Dr. Champneys considers that these cases should not be classed under the name 'obstructive.' These cases are, he states, often cured by use of a bougie, 'but the fact that the bougie cures them does not prove obstruction, for in many of them a large bougie meets with no impediment even during the paroxysm, and a sound as a rule passes with ease.'

I have observed in my own practice cases resembling those alluded to by Reil and Champneys, in which the transition from contraction to expansion at the os uteri was observed to occur with remarkable suddenness, and in such a manner as to favour the theory of polarity enunciated by Reil. A case particularly I have in my mind, where the cervix had been under expansion by a dilator to relieve sickness at the third month of pregnancy. In this case there was a sudden transition from resistance to great expansibility observed at the os uteri.

Dr. Champneys' extension of Reil's theory to the explanation of menorrhagia and dysmenorrhœa is ingenious. Dilatation of the os uteri by tents or bougies has the effect, as I presume he would argue, of transferring contraction from the os to the fundus, or, *vice versâ*, of transferring relaxation from the fundus to the os uteri. Now it may very well be that this is so, but the operation in question has other effects also which have to be taken into account in explaining the results observed. Those other effects are (1) straightening of the canal, and (2) increase in the size of the canal. Either one of these effects would be likely to be followed by relief. Dr. Champneys objects to the term 'obstruction' in cases where 'a large bougie meets with no

impediment,' but there are cases in which the uterus has a retort shape, and in which the sound passes without apparent obstruction, owing, as I have already stated, to the fact that as it enters it straightens the uterus and removes for the moment the obstruction—namely, the flexion of the uterus. So again, in cases of menorrhagia due to pouching of the uterus and retention, the use of bougies removes the 'obstruction,' which is not the less real because the sound apparently encounters no impediment.

It does not appear, in short, to me that it is necessary to revert to Reil's theory of polarity in order to explain the beneficial influence of dilating the cervical canal for the cure of dysmenorrhœa and menorrhagia. These beneficial effects are probably mainly connected with the production of a free and ready outlet for the discharges from the uterine interior—free drainage in fact. Further, artificial mechanical expansion of the cervix would be likely by reflex action to excite contraction of the fundus. It is to be remarked that the necessity for the use of dilatation implies the presence of some abnormal condition of the os uteri. The question is, what is that abnormal condition? The condition is probably not always the same. In some cases there is general softness, flaccidity, and pouching of the uterus; here straightening, free outlet for escape of fluid, and the excitation of uterine contraction in the fundus, by reflex action or altered polarity (Reil and Champneys) are beneficial. In some cases, again, there is a contraction and condensation of the tissues around the internal os uteri due to flexion, perhaps of some standing, and the dilatation and straightening of the canal relieves this, accomplishing the object by actual stretching of the condensed tissues. There are two types, between which there are many varieties.

In regard to the sufficiency of the canal to allow of the passage of fluid, it must not be forgotten that the *quantity* of the fluid varies in different cases; a canal which may be a very sufficient outlet in one individual or under one set of circumstances may be inadequate in another individual and under different circumstances. There are other things to be considered also, in respect to each of which considerable variations are observed; the state of vascularity of the uterus itself; the state of vascularity or fulness of the surrounding organs.

The uterus is liable to certain morbid alterations in texture which may still more materially affect the patency of the canal of exit. Thus, within the tissue of the uterus frequently grow fibrous tumours, which may, and do occasionally, encroach on



the canal, and thus constrict it. Fig. 154 represents a case of this kind. The same result may be produced by polypi growing within the uterine cavity itself; and occasionally we find the whole cervix uteri congenitally narrow, from an apparently defective development of this part of the generative organs. A very important class of cases are those in which the lower segment of the uterus—the cervix—has become hypertrophied, indurated, and otherwise diseased: here the canal may be contorted and twisted in such a way that the extra amount of congestion which occurs

FIG. 154.



at menstruation so swells out the cervical tissues as to seriously affect the patency of the canal.

These considerations are sufficient to show that we have not far to go in order to find a number of conditions capable of producing constriction of that canal by which the menstrual fluid is evacuated from the uterus. Conditions of the kind alluded to are known to be associated with severe dysmenorrhœa; and the pain in such cases is completely accounted for by the retention, temporary or partial, which we may suppose to be present under these circumstances.

Other arguments for the truth of the explanations now offered may be drawn from the facts, that, in the first place, dysmenorrhœa of the kind now under consideration is very frequently associated with sterility (see statistics on this subject at p. 186); that, in the second place, it is not observed in women who have had children, unless in connection with some recognisable and very obvious alteration in the cervix uteri of such a nature as to interfere with the patency of the canal, which is sometimes the result of the parturient process; and, in the third place, from the results obtained by mechanical treatment for improving in various ways the patency of the utero-cervical canal.

A careful study of the symptoms and phenomena observed in cases where actual obliteration of the os uteri, permanent or temporary, has been known to be present, the menstrual product having been retained within the uterus and unable to escape, throws a considerable degree of light on the question now under discussion. In the work of Bernutz and Goupil<sup>1</sup> we find collected a very large number of accurately observed cases in which the kind of menstrual retention now alluded to was unquestionably and demonstrably present; and means are thereby afforded for studying the subject analogically, so to speak. The difference between the two classes of cases—those in which there is complete menstrual retention, as in the instances just referred to—and those in which there is what may be termed incomplete or partial menstrual retention—is only one of degree.

The cases which have passed under my own observation have offered the strongest possible confirmation of the truth of the position now maintained, that in ordinary cases of dysmenorrhœa, in which there are, first, pain, and, after a variable time, appearance of a discharge, what we have before us is really *partial but temporary menstrual retention*.

Naturally, the cavity of the uterus is very small, and incapable, unless dilated, of containing more than a very small quantity of fluid. It is the result of experience that different individuals bear dilatation of the uterine cavity very variously; and hence it follows that retention of menstrual fluid within the uterus may produce different degrees of pain and very various degrees of suffering in different individuals.

<sup>1</sup> *Clin. Méd. sur les Mal. des Femmes*, tom. i. (Paris, 1860). See also the English edition of this work by Dr. Meadows, issued by the New Sydenham Society.

The *severity* and *intensity* of the pain in cases of dysmenorrhœa is open, as already stated, to much variation. It is sometimes so severe, that the patient rolls on the ground in agony; it is not seldom so severe that for a day or two the patient is obliged to seclude herself from society, and is confined to her bedroom. In some rare cases the reason itself is disturbed by the excruciating and intense pain which is felt.

*Inter-menstrual dysmenorrhœa*.—A variety of dysmenorrhœa has been described under the term ‘inter-menstrual dysmenorrhœa.’ Cases now and then occur in which about midway between the ordinary menstrual periods there are observed attacks of pain like those at the ordinary period. And in these cases there is a considerable regularity in the onset of such attacks. Dr. Priestley read a paper on this subject at the Royal Medical and Chirurgical Society some few years ago. I have seen a few cases of this kind having the characters described by Dr. Priestley. In the cases observed by myself the attacks appeared to be associated with expulsion of a leucorrhœal fluid from the uterus, the fluid being retained in consequence of a chronic flexion. Dr. Fasbender<sup>1</sup> gives a case of severe dysmenorrhœa, in which the patient, single, aged 24, had suffered for two years from this inter-menstrual pain. The uterus was sharply anteflexed, and ‘endometritis’ was present. The patient was entirely cured by use of an intra-uterine pessary.

*Nausea and vomiting* are symptoms which very frequently accompany the pain of dysmenorrhœa. This is a point which has as yet not attracted the attention it merits. Here it may suffice to say, that nausea and vomiting are by no means uncommonly observed, and sometimes with excessive severity in cases of dysmenorrhœa due to chronic flexions of the uterus.

The *causes of obstructive dysmenorrhœa* are—

Flexion of the uterus (most usually at the situation of the internal os uteri) occasioning a virtual stricture of the canal at its narrowest part. Ante- and retro-flexion equally are capable of giving rise to mechanical difficulty.

Congenital narrowness of the cervical canal, in association with *presence of an infantile uterus*.

Congenital narrowness of the os internum—the junction of the cervical canal with the cavity of the body of the uterus.

Congenital narrowness of the os externum uteri; not so commonly a cause of dysmenorrhœa as of sterility. Undue congestion

<sup>1</sup> *Zeitsch. f. Geb. und Frauenk.* vol. i. No. 1.

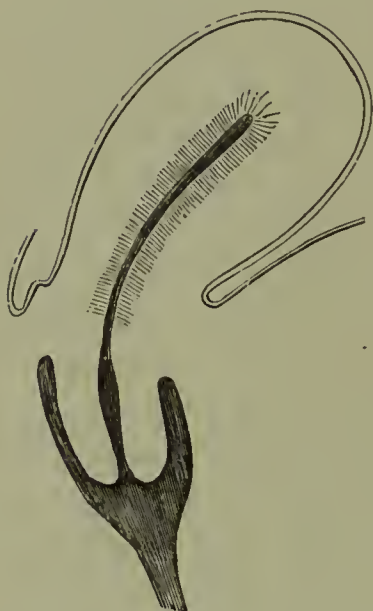


and hypertrophy of the lining membrane of the cervix uteri, the canal being of the ordinary dimensions.

Increased flow of blood from the interior of the uterus; the canal of exit being insufficient for the ready escape of the blood.

Fibroid tumours growing in the thickness of the uterine wall, and so placed as to compress or distort the cervical canal. These tumours most commonly produce dysmenorrhœa when situated in the anterior wall, and generally occasion also some degree of flexion of the uterus, whereby the difficulty is aggravated. The most severe forms of dysmenorrhœa are witnessed among this class of cases.

FIG. 155.



Chronic congestion of the uterus itself, associated with slight degrees of flexion, or with other of the conditions above enumerated.

Small intra-uterine polypi hanging down within the cervical canal and acting as a plug, thus preventing the ready escape of the menstrual fluid.

An elongated condition of the vaginal part of the cervix, often associated with flexion of the canal at about its middle, or opposite the point of reflexion of the vagina on the cervix (see fig. 155).

Contortion of the cervical canal dependent on an irregularly hypertrophied condition of the cervix. This is a condition not very uncommon, as the result of chronic inflammatory action in the part in question.

*Membranous dysmenorrhœa.*—Under this term are included a class of cases possessing peculiar interest, in which, at each menstrual period, or very frequently so at all events, a membrane is discharged. Scanzoni held that exfoliation of the mucous membrane occurs more frequently than is ordinarily supposed. He found portions of the mucous membrane in 14 out of 21 cases of dysmenorrhœa, when careful search was made for them. This is what we should indeed expect, if the partial exfoliation or destruction of this membrane occurs at each period under ordinary circumstances. It is, however, rare to meet with cases of exfoliation of the membrane in an entire piece, or to meet with pieces of any considerable thickness, and to cases of the latter class only does the term ‘membranous dysmenorrhœa’ apply. There appears to be no doubt whatever that the membrane discharged in these

cases is really the uterine mucous membrane, but whether it is an accidental thickening due to excessive growth, or to pregnancy, is not certain.

The expulsion of the membrane is attended usually with pain, just as happens in cases of abortion, and this pain is of precisely the same character as in cases of abortion, and indeed as in the cases of menstrual retention just described.

In one case it was stated that the membrane was discharged usually not later than twenty-four hours from the time of the

FIG. 156.<sup>1</sup>

commencement of the discharge. At this time there was a stoppage of the discharge for an hour or two, the bag of the membrane then coming away, its expulsion being attended with severe pain, and the discharge then continuing uninterruptedly for three or more days.

In another case, that of a lady, æt. 34, who had been married for thirteen years, never pregnant, for the last eight years certainly, probably for a longer time, a membranous bag, complete or in shreds, had been expelled at almost every menstrual period. The body in question made its appearance always within the first few hours after the discharge had begun to flow.

<sup>1</sup> This drawing, made for me by Mr. Tuson, represents the uterine lining expelled nine weeks after a catamenial period. There was no trace of an ovum nor evidence of attachment of one. The flocculent shaggy external aspect and the smooth velvety internal surface are well shown. The patient had had one child, and thought she was pregnant.

In both of these cases the interval between the catamenial periods was long—five weeks—and in both the membrane actually expelled belonged to, or was the product of, the former menstrual period. If, normally, the menstrual decidua is thrown off from the uterus after the discharge has ceased, or at all events during the latter period of the discharge, it would appear that in these cases this exfoliation was postponed, the membrane continuing to grow during the inter-menstrual period.

Dr. John Williams<sup>1</sup> considers the dysmenorrhœal membrane is the decidua ordinarily shed, and that it is expelled in these cases as a whole or in masses in consequence of an excess of fibrous tissue in the wall of the uterus, the excess being due to imperfect evolution at puberty, imperfect involution after parturition or abortion, or is the product of acute inflammation. The inflammation is the result of the expulsion of the masses. To effect a cure he believes that the structure of the whole of the body of the uterus must be altered.

The late Dr. Beigel,<sup>2</sup> in a paper on the subject, considered that it arises from a pathological change in the mucous membrane, which, in consequence of excessive cell proliferation, is separated from the surface and falls off in flakes. Microscopically he found the normal elements increased in some cases, in others single elements—glands, epithelium—lost or degenerated; in some he found embryonal cellular tissue; in all cases he found round free cells formed which cause the separation. He believed that the membrane is not the result of conception.

Dr. Gautier (Geneva)<sup>3</sup> believes it to be a desquamation affecting not only the epithelial layer, but a portion also of the sub-epithelial structure analogous to that observed in certain affections of tegumentary or mucous surfaces. He likens it to ichthyosis, and suggests the term for it of ‘uterine ichthyosis.’

Sterility appears to be very generally associated with membranous dysmenorrhœa. It appears also that while in single women the cast of the uterine cavity comes away in detached fragments, the perfect casts of the uterine cavity are only observed in married women. Hence it has been asserted by some—Haussman, for instance—that these casts are really abortions. No doubt early abortions may be mistaken for membranous menstruation, and in fact the dysmenorrhœal membrane closely resembles the thickened decidua of the first month of pregnancy. From what is known,

<sup>1</sup> *Obst. Trans.* for 1877.

<sup>2</sup> *Archiv f. Gynæk.* Band ix. Heft 1 (1876).

<sup>3</sup> *Essai de la Pathogénie de la Dysménorrhée membraneuse* (Geneva, 1878).



however, it appears that the casts of the uterine cavity may appear when there has been no possibility of their being due to conception. But it may well be that in the same case there may occur expulsions of a membrane due to conception alternately with a membrane not originating in this way.

It is certain that in some of the cases the uterus is in a state of chronic flexion. And it may turn out to be the case that the morbid condition in question is really due to chronic congestion of the lining of the uterus, kept up and perpetuated by the flexion and the obstruction at the internal os which is thereby produced.

*Disordered ovulation.*—The process of ovulation, consisting in the maturation and dehiscence of the ova, the swelling and rupture of the Graafian follicles, is liable to be disordered; the rupture may be impeded by presence of undue thickening of its external tissue, due to inflammation of the ovary generally (see chapters on ‘Diseases of the Ovary’), or of the particular follicle itself; or the distension of the follicle prior to rupture may be greater than usual; or the ovary may be unusually sensitive, and the physical phenomena being normal, the extreme sensibility of the patient renders the natural process unusually painful.

‘It is probable,’ says Dr. Farre,<sup>1</sup> ‘that when the follicle or the entire ovary becomes tense from the effusions which have been shown to have taken place ordinarily within it, and this tension is not relieved because rupture does not occur at the proper time, so that *ovulation is disappointed, or is aberrant*, the symptoms which might be expected to accompany such an interrupted process would be those which are usually set down as indicating inflammation in a part.’

As a matter of experience I must confess that I have met with very few cases in which pain during menstruation could be traced directly to the ovaries. The locality of the pain is not a proof of the ovary being its seat, for in many cases of ante flexion of the uterus a pretty constant pain in the region of the ovaries is frequently observed, and that it disappears on altering the position of the uterus would appear to show that it is not, in such cases, located really in the ovary. It is not denied that ovaritis and pain due to ovaritis are observed; but the condition does not appear to be common.

In cases of *displacement of the ovary* when the organ is low down in the Douglas pouch, a condition sometimes associated with

<sup>1</sup> *Cyc. Anat. and Phys.*: article ‘Uterus,’ p. 576.

retroflexion of the uterus, the ovary is extraordinarily sensitive and painful to the touch, and dysmenorrhœa observed in such a case would no doubt be aggravated by the presence of such displacement.

*General abdominal congestion, derangements of digestion, etc.*—Women who are the subjects of chronic uterine disease of various kinds, and who habitually experience more or less pain in the pelvic organs, naturally suffer more at the menstrual periods. Those who have a congested, overloaded condition of the abdominal viscera, suffer more at the menstrual periods than others. A sedentary or a too luxurious mode of life rarely fails to give rise to the congestion in question. Derangement of the digestive organs to a marked extent is usually present under such circumstances.

The complication of dysmenorrhœa with nausea and vomiting has been alluded to. Hysteria is another complication. I have seen a few cases in which exceedingly intense *headache* has been observed in conjunction with dysmenorrhœa—headache so severe that the patient was lost to consciousness of everything else (see a later chapter). A *neuralgic* habit of body constitutes a predisposition. It is generally, and as I believe correctly, supposed that the existence of the *rheumatic diathesis* predisposes to menstrual suffering. The patient afflicted with this ‘rheumatic’ form of dysmenorrhœa is liable to migratory pains in different parts of the body, more especially in the joints; there is a loaded condition of the urine from excess of urea, lithic acid, and lithate of ammonia. Flatulence and hæmorrhoidal congestion are also usually present in such cases.

Thus, to sum up these remarks on the pathology of dysmenorrhœa :—

The pain may be due to retention of menstrual fluid, which may be either partial or complete. That is to say, there may be a slight discharge, but, the aperture of escape being insufficient, there is a partial retention; or, the patient being, for a variable time, without discharge of any kind, the case is one of complete retention.

The pain may be due to congestion of the uterus, to congestion of the ovaries, to inflammation of the Graafian follicles coincident with ovulation, or simply to neuralgia.

These two classes of cases glide insensibly one into the other. Obstruction, when present, gives rise to congestion, to inflammation, to suffering of neuralgic character; and, *vice versâ*, the

congestion or inflammation of the uterus leads to obstruction in the manner already pointed out; but the cause of the sufferings of the patient appears in the majority of cases to be associated with partial or complete retention of menstrual fluid.

#### DIAGNOSIS.

The diagnosis of pains referable to the generative organs, including those of a dysmenorrhœal character, will be considered in the Appendix.

#### TREATMENT OF DYSMENORRHOEA.

In treating cases of dysmenorrhœa, the object in view is not simply to relieve the pain actually present, but to prevent its occurrence. The study of the pathology of the affection shows that dysmenorrhœa is a symptom only, which in the main is observed concurrently with presence of an impediment to the escape of the menstrual secretion from the uterus. How to remove that impediment is therefore the primary object in the treatment of such cases. Our object is to render the evacuation of the menstrual products (blood and broken-down mucous membrane) easy; and experience has most abundantly shown that when this evacuation is easy it is also generally quite painless.

The study of the pathology of flexions of the uterus makes us acquainted with the fact that these affections are principally and most frequently, though not exclusively, the cause of the impediment to the escape of the menstrual products from the uterus. To cure the flexion is generally to remove this impediment. Hence the treatment of dysmenorrhœa means in the majority of cases the treatment of flexions.

Dysmenorrhœa when slight in degree may require little treatment, but when severe and of long standing it is hopeless to expect good results from the ordinary palliative or so-called general treatment. Years are occasionally wasted in the vain expectation of seeing an amendment, and the prospects of a life thus blighted in consequence of a rational and decided line as regards treatment not having been taken at an earlier period.

The mechanical treatment of dysmenorrhœa, practised in various methods, has been largely carried out of late years. At first the narrow uterine canal was incised and the canal thus increased in size. Then it was dilated. Satisfactory results followed from both these methods of treatment. The idea on which both



of these methods of treatment was based was that the stricture or narrowing was analogous to that observed in other canals, *e.g.* the urethra; and it so happened that incision and dilatation, although based on an imperfect notion of the real circumstances of the case, proved beneficial in many instances. The defect in the procedure was that the supposed stricture was not a real stricture, but an impediment created by flexion of the canal. Incidentally the treatment accomplished, for a time at least, the work really wanting to be done, *viz.* the straightening of the canal. These observations apply to the majority of cases treated, though no doubt in some exceptional cases the uterine canal was really narrowed as well as bent, and they do not of course apply to cases (rare, however) of stricture of the os externum uteri. There has been much conflicting testimony as to the value and efficacy of the incision treatment for dysmenorrhœa, but the foregoing remarks will perhaps explain why incision or dilatation of the cervix uteri might do good and prove serviceable, and why also they might fail to prove permanently of use.

Another method of treatment—the use of uterine stems—has been also employed in the treatment of dysmenorrhœa, the action of the stem being to preserve a patency of the uterine canal, while it also maintains the uterus straight and prevents flexion.

So far as the relief of dysmenorrhœa is concerned it may be said of these various procedures:—

The *incision* method procures rapidly and at once the necessary patency of the canal. But, unless followed up by other treatment, the incised surfaces generally unite not long afterwards, and the cicatricial tissue resulting may give rise to still further trouble. Moreover, the flexion (generally existing) recurs in spite of the incision, or may do so unless it receive attention. And it has to be mentioned that in some cases the incision treatment leaves behind it a most intractable form of neuralgia of the cervix. As regards the cure of the dysmenorrhœa the result is generally good for a time, but the duration of the cure very uncertain. The incision treatment is nevertheless applicable in certain cases, particularly when a hard gristle-like condition of the internal os is present.

The *dilatation* treatment is more rational in design, but experience shows that to be efficacious it must be repeated frequently. The dilatation implies also straightening of the canal, and the repetition of combined straightening and dilatation offers the very best means of permanently altering the shape and direction of the canal.

The use of *stems* for the relief of dysmenorrhœa is no doubt a rational and scientific procedure, the uterine canal being kept thereby straight and open; and the canal is more likely to grow permanently into a better shape than before. The drawbacks to this method of treatment are great, but in certain difficult cases this method of treatment will find its proper place.

It is possible, however, in the early stages of the affection, to treat dysmenorrhœa mechanically without the use of instruments or internal mechanical appliances of any kind. When it becomes thoroughly understood how dysmenorrhœa generally originates, a comparatively simple treatment will be found, as I have found it to be in many cases, easily applicable, and very efficacious.

*Postural treatment of dysmenorrhœa.*—The postural treatment of dysmenorrhœa is founded on an appreciation of the connection between uterine flexion and the symptom in question. Means must be taken to prevent the descent of the fundus uteri. In cases of ante flexion the dorsal position is a proper one. In cases of retro flexion the prone position is best. In either case, however, the knee-and-elbow position, maintained for four or five minutes together, several times a day, is very serviceable. The fundus is thus raised up, the flexion relieved, and the dysmenorrhœa also. It has been long known that rest is most efficacious in relieving dysmenorrhœa. Some patients habitually go to bed during the menstrual process, finding so much relief from the position. There is nothing therefore new in the recommendation to rest at this time, but experience has shown that the positional treatment above described carries the effect still further. The treatment is particularly valuable in the case of young single women who are suffering from dysmenorrhœa not of such severe character as to render internal treatment imperatively necessary. And indeed I have in several cases employed positional treatment with great success where no examination at all had been made, but where the symptoms and general history conclusively, to my mind, showed that the patients were suffering from commencing uterine flexion.

Positional treatment is also very valuable as an adjunct in cases where internal mechanical apparatus are in use.

*Palliative measures.*—Rest, the horizontal position, postural treatment, as above described, are all of first-rate importance. The warm hip-bath, temperature 100° or even higher, is to be recommended. Copious vaginal injections of hot water are sometimes found very serviceable. Ether, compound spirit of sulphuric

ether, camphor, and henbane are ordinary and very useful remedies. Gin and water is a common domestic remedy. Poultices with laudanum sprinkled over them, hypodermic injections of morphia, turpentine stupes, are other remedies occasionally employed. Suppositories containing opium or morphia are very effective, but the use of opium is not advisable unless under strict medical orders. Chloral and bromide of potassium are good remedies. Guaiacum (Dewees), black hellebore (Meigs), have been strongly recommended. Colchicum, cannabis indica, and in fact every sedative and anti-spasmodic in the pharmacopœia, have been employed for the relief of the pain with more or less success.

During the menstrual period great care is required that the bowels be kept regular, that the digestive organs be in an easily working condition, and that food be adequate but not in too great quantity. It should be known that it is dangerous to use cold baths during menstruation.

*Internal mechanical treatment.*—A careful study of the particular case will generally indicate the line of treatment to be pursued. So far as the treatment of the flexion is concerned, that has been already discussed in previous chapters. The size, shape, thickness, and textural condition of the uterus must be duly appreciated in order that the proper plan of treatment may be selected.

Assuming that internal mechanical treatment is necessary, the following may be given as a sketch of the plan to be adopted.

In more recent cases it is a good plan to employ a vaginal pessary—the cradle for ante flexion, the Hodge pessary for retroflexion—continuously; and occasionally to employ the sound, with the double object of straightening the canal and more completely replacing the uterus.

In more chronic cases the pessary alone is of little service unless the uterus be very soft. In long-standing cases the hardness of the uterus renders necessary frequent use of the sound to aid in the unbending. If the uterus be soft the sound is less frequently required. The steel dilator (described at p. 198) is exceedingly useful in the chronic cases. It may be employed twice a week. In most cases I have found that by the combined use of the vaginal pessary, the sound, or the steel dilator, the chronic dysmenorrhœa can be relieved. But the treatment requires to be continued for some weeks and to be resumed at intervals of a few months in very long-standing cases. Thus, the vaginal pessary can be worn continuously, but the dilatation and sound treatment should be applied at intervals.



In a chronic case, where the internal os uteri is the seat of induration from the long-continued flexion compression, the question of incision arises. In some such cases slight incisions at this spot facilitate the treatment.

The stem treatment is applicable to the chronic cases. It is quite unnecessary for the more recent cases which can be readily cured by vaginal pessaries and the occasional use of the sound. But in the chronic cases, as explained in the chapter on 'Flexions' (see p. 199), the stem treatment is most applicable, though for my own part I confess that I have as a rule a preference for other methods of treatment.

In the treatment of cases of dysmenorrhœa the treatment of the uterus as a whole must be kept in view. It is of little use to open the canal, to straighten it, and to reduce the flexion, unless means be taken to strengthen the uterus itself: this is only to be done by careful nutritional treatment. In chronic cases, the cure is not obtained speedily even under careful treatment; for when the uterus has become hard the moulding of the organ into a better shape is a long process, and when the uterus is very soft the time occupied in making up the nutritional deficiencies is seldom less than a year or eighteen months.

The cases of so-called *conical cervix*, where the cervical part of the uterus is unduly elongated and of a tapering shape, require a special mention. The uterus is anteфлекed in these cases, and generally acutely so. The dysmenorrhœa may be severe, the condition is difficult to cure. The practice of amputating a part of the cervix was recommended by Dr. Marion Sims. Another plan, which has been also adopted by Dr. Sims and by Dr. Emmet, is to incise the posterior cervical wall by scissors. In fig. 88, at p. 296, Emmet's method of incising the uterus in such cases is represented. Neither of these plans of treatment are really satisfactory, for the uterus is left permanently mutilated in either case, while the cure even of the dysmenorrhœa is by no means a certainty. These cases require a long treatment by judicious association of straightening, dilatation of the uterus, and wearing of a cradle pessary. A stem pessary may be used with advantage in such cases, at all events during a portion of the time occupied in the treatment. The uterine canal is really too long in these cases, but it becomes shortened by the process of straightening, and if the result is found to be obtainable in this way it is better than amputating the cervix.

Cases of dysmenorrhœa due to *congenital narrowness of the*

*whole cervical canal*, with an infantile uterus, or in cases where the uterus is otherwise well developed, are best treated by dilatation. For dilatation the tangle tents are very suitable. If the *os externum* be the only narrow part, incision is the proper remedy, the incised parts being kept asunder for some days by a plug of lint to prevent adhesion.

The treatment of *membranous dysmenorrhœa* has hitherto been generally very unsatisfactory. A careful and persevering attempt to secure continuous patency of the uterine canal by use of dilators, or tents, or the stem pessary, seems to me to offer the best chance of doing permanent good in such cases, but it may be that some internal remedy may be found efficacious: as yet nothing has appeared of much service.

## CHAPTER XXXV .

LEUCORRHOEA AND NON-SANGUINEOUS DISCHARGES FROM THE  
GENERATIVE ORGANS.

Normal Secretions of the Generative Passages.

**PATHOLOGY.**—WATERY DISCHARGES—MUCOUS and PURIFORM DISCHARGES—  
SANIOUS and OFFENSIVE DISCHARGES—Their various Physical Characters and  
Causes. SYPHILITIC and GONORRHOEAL DISCHARGES.

**ETIOLOGY.**—Constitutional, Local, and Specific Causes.

**TREATMENT.**—General Treatment—Removal of the Cause—Resort to Watering  
Places—Baths—Injections—Internal Remedies.

*The normal secretions of the generative passages.*—In a state of health there is poured out from the mucous membrane of the vagina, from the sebaceous and muciparous glands at the orifice of the vagina, from the vulvo-vaginal glands situated one at each side just within the orifice of the vagina, from the cervix uteri, from the whole of the mucous tract extending from the ostium vaginæ to the termination of the Fallopian tubes, a secretion sufficient to lubricate the opposed surfaces of the mucous membrane. This secretion is liable to be physiologically increased in quantity, as during congress, and under other circumstances, and it is liable at any moment also to be increased in quantity pathologically, giving rise in the latter case to fluid or other discharges.

At the orifice of the vagina, we have *sebaceous follicles* scattered over the nymphæ, clitoris, and inner surface of the labia, the secretion of which contains butyric acid, and has a strong and somewhat ammoniaical odour (A. Farre). Around and at the sides of the vaginal aperture there are many *muciparous follicles* which secrete viscid mucus. Further, we have the vulvo-vaginal glands, which secrete a viscid fluid with a neutral reaction (Beigel),<sup>1</sup> resembling somewhat the prostatic fluid, and having a peculiar odour. The secretions of these glands at the

<sup>1</sup> 'Researches on the Secretions in Fluor Albus.' By Dr. Beigel. *Deutsche Klin.* 1855, p. 205.



vaginal orifice are liable to considerable increase during venereal excitement.

The *vaginal mucous membrane* secretes a fluid, at first transparent, acid, and mixed with large quantities of epithelial *débris*. This secretion usually appears at the outlet as a whitish or milky-looking secretion. Sir C. M. Clarke considered this appearance due to the entanglement of air, just as the saliva forms a whitish accumulation at the corners of the mouth in individuals speaking rapidly. The more decidedly *curdled* aspect of this secretion occasionally observed appears to depend on the albumen being precipitated by the acid of the secretion. In the vaginal mucus Donné found, on examination by the microscope, a number of *trichomonata*, which are oval, shaped like a pear or biscuit, and are from six lines to an inch and four lines long. Respecting these animacules, however, Scanzoni makes the remark that their presence is connected with a certain alteration of the product of the vaginal secretion, and that they do not develop much except in a mucus incontestably of pathological nature. Beigel also failed in finding them.

The mucous secretion of the *uterine cervical cavity* is of a very different character altogether. The glands of the uterine cervix, first accurately and thoroughly described by Dr. Tyler Smith,<sup>1</sup> are exceedingly numerous, and the apparatus there situated is, when in a state of activity, capable of producing an enormous amount of secretion. Hence the extreme importance of this part of the generative passages in all considerations having reference to the etiology and nature of leucorrhœa.

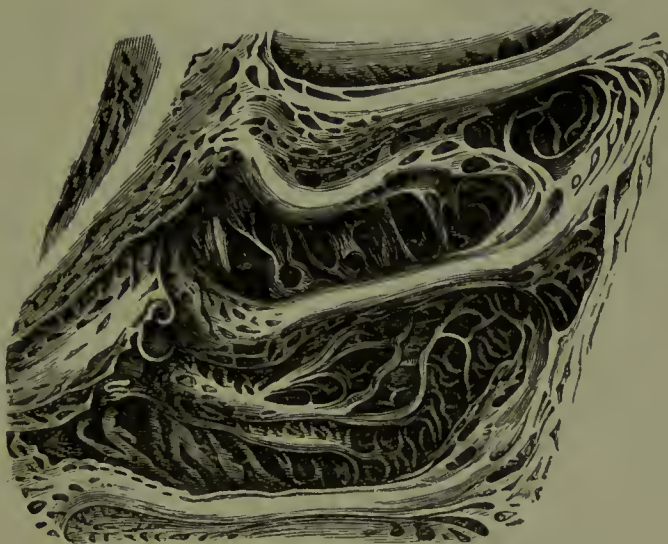
The secretion of the glands of the cervix uteri is not acid, but alkaline. It is, when seen issuing from the crypts of the mucous membrane, transparent, somewhat resembling the mucous secretions of the nasal passages, or white of egg, in appearance, but very tenacious and viscid; it contains many mucous corpuscles, and epithelium of the columnar variety is mixed up with it. The characters, as here described, are lost in the discharge as usually witnessed, after it has passed down the vaginal canal and become mixed with the secretions of the latter surface. The effect of the admixture of the secretions from the cervix and the vagina is that a white soapy or creamy fluid results. It now and then happens, however, that the cervical secretion escapes from the vagina in the form of masses of coagulated albumen. Ordinarily, and when the parts are in a condition of health, the secretion from the cervix

<sup>1</sup> *On the Pathology and Treatment of Leucorrhœa*. London: Churchill. 1855.

is not probably considerable in quantity. The mucus lubricating the vaginal passages during labour proceeds chiefly from the cervix uteri.

The natural secretions of the *lining membrane of the body of the uterus* during the inter-menstrual periods, are, in a state of health, and when the uterine functions are carried on properly, probably very small in amount, and the fluid poured out is a colourless mucus. But when the cavity of the uterus is increased in size, the area of secreting surface is necessarily much extended, and important results follow, as will be hereafter explained when we come to consider the causes of leucorrhœa.

FIG. 157.<sup>1</sup>



Lastly, respecting these secretions in a state of health, it must be stated that usually they are only sufficient in quantity to lubricate the parts; but there are not a few instances in which the secretions are much more profuse, and yet without entitling the case to be considered altogether pathological. In some cases the increase in quantity is purely physiological.

#### PATHOLOGY.

The more prominent physical characteristics of the various discharges to which we have now to direct attention have been made the basis of a rough sort of classification. Thus, there are *watery* discharges, *mucous* discharges, *muco-puriform*, and *purulent* discharges. Then, we have discharges which occasionally

<sup>1</sup> Fig. 157 shows interior of cervix magnified. (Tyler Smith.)

assume a *sanious* character, in which there is an evident admixture of blood elements. *Offensive* discharges also form a class, the differential diagnosis of which may be usefully pointed out.

It will be convenient to discuss these *seriatim*.

#### WATERY DISCHARGES.

Pregnant women are sometimes the subjects of a discharge of a watery nature, the origin of which is open to some doubt. The fluid may escape gradually, and the flow may be persistent for a longer or shorter time; or the quantity may be greater, but the duration of the same less. In some cases the discharge comes certainly from the amnion.

There is another class of cases in which a watery discharge occurs from time to time, *i.e.* in cases where the uterus is occupied by the *hydatidiform* or *vesicular mole*—‘hydatid pregnancy,’ as it was formerly called. Patients believed to be pregnant increase too rapidly in size, foetal movements are not felt, the mammary symptoms are in abeyance, the whole aspect of the case being irregular, so to speak, and yet there are strong reasons for believing the woman originally to have been pregnant. After a time, slight losses of blood may occur, and slight but repeated discharges of watery fluid, which are generally accompanied by labour-like pains; or discharge of watery fluid alone is observed. The cause of the discharge is rupture of the cyst-like vesicles composing the chief part of the degenerated contents of the uterus; partly perhaps also to expulsion from time to time of amniotic fluid. Respecting the appearances presented by the hydatidiform bodies themselves, which may be expelled together with the watery fluid, see p. 471.

Another cause of watery serous discharges from the vagina is found in the presence of that peculiar growth first described by Dr. Clarke under the name *cauliflower excrescence*, but which is now known as epithelial cancer or epithelioma. The fluid discharged in such cases is described in the work of Sir C. M. Clarke as ‘little more than a clear watery fluid; blood, however, is sometimes mixed with it, or perhaps comes away alone in large quantities.’<sup>1</sup> The quantity of fluid discharged is sometimes enormous. Dr. Ramsbotham records a case in which twenty dozen napkins were used in a week. Safford Lee describes the discharge

<sup>1</sup> Vol. i. p. 34.



as brownish, like coloured saliva, and this description is very accurate.

The presence of *polypi* within the uterus is occasionally the cause of a very profuse watery discharge. This fact has not been sufficiently dwelt upon. I have observed this symptom to be present in a marked degree in several instances.<sup>1</sup> Here discharges of a watery nature are observed alternately with sanguineous discharges, and profuse menstruation, together with other signs of polypus, are present. The more usual form of discharge attendant on uterine polypi is not, however, that now under consideration. Such watery discharges are occasionally the sole symptom present in cases of polypus of the uterus.

An abundant serous, or sometimes offensive, discharge may be found to be due to the presence of a *fungous cancerous growth* within the uterine cavity. This is a form of disease of great rarity.<sup>2</sup>

*Tubercle of the uterus.*—In this rare disease a continuous profuse watery discharge, of a dirty yellow or pale brown colour, extending over a considerable period, may be noticed.

Sometimes an *ovarian cyst* becomes adherent to one of the Fallopian tubes, or, at all events, in some way becomes connected with it; the contents of the ovarian cyst pass into the Fallopian tube, thence into the uterus, and flow away gradually from the vagina. The signs present in such a case would be: previous existence of a tumour situated in the hypogastrium, or more or less to one side, subsidence of the same, an occurrence of simultaneous watery or serous discharge from the vagina. This mode of termination of an ovarian cyst is rare; Dr. West only noticed it in one out of sixty-eight cases. I have observed the fact in two instances.

*Watery discharge following parturition.*—In Dr. Ashwell's work<sup>3</sup> will be found related particulars of five cases in which a profuse watery discharge, coming away in gushes, was noticed some days after labour. In only one of the cases was opportunity afforded of ascertaining *post mortem* the condition of the uterus: in that case, 'three elevated masses, having a fungoid and melanotic appearance,' were found growing inwards from the uterine wall. Such cases are rare.

Sir C. M. Clarke refers to another cause of watery discharges

<sup>1</sup> See cases by Dr. Elkington, illustrative of this fact, in *Obst. Trans.* vol. i.

<sup>2</sup> See Sir J. Y. Simpson, *Med. Times and Gaz.*, Jan. 15, 1859.

*On Diseases of Women*, p. 507.

from the vagina, the '*oozing excrescence of the labia*,' probably identical with what would be now termed chronic eczematous affection of the skin covering the parts in question, associated with a chronic inflammatory condition of the tissues beneath.

Lastly, it is just within the limits of possibility that the watery discharge present may be really an *involuntary escape of the urine* from the bladder, either caused by paralysis of the muscles surrounding the urethra, or due to vesico-vaginal fistula.

#### MUCOUS AND PURIFORM DISCHARGES.

The cases in which discharges having this character are observed form that large class of cases to which the term 'leucorrhœa' is more usually applied. In this group of cases the discharges are more or less completely continuous and are more or less opaque. The colour varies exceedingly; it may be whitish, decidedly yellow, yellowish-green, or of any intermediate shade. The consistence of the discharge also varies; it may be viscid, gelatinous, of the consistence of cream, or quite fluid.

Most cases of 'leucorrhœa' are of a composite nature; that is to say, the discharge observed at the vaginal orifice proceeds from more than one source, and results from the mixing of secretions from the cervical mucous membrane, from the mucous membrane lining the vagina, and, in certain cases, also from the interior of the body of the uterus itself.

In most cases there is a preponderance of secretion from one or other of the sources indicated. The difference in the source of the discharge has been made the basis of a division of cases of leucorrhœa into 'uterine' and 'vaginal'; the former including cases in which the discharge proceeds chiefly from the uterus (the cavity of the cervix), and the latter including those cases in which the discharge has a vaginal origin.

If the discharge consist of a curdy-looking fluid, of an acid reaction, and containing in suspension tessellated epithelium *débris* in quantity, it more generally happens that it proceeds from the mucous membrane of the vagina.

If the discharge consist of a soapy-looking matter, or of vitreous lumps of coagulated mucus, or of viscid tenacious mucus, the origin of the same is the cervix uteri. It is only in cases where the cervical glands are in a very active condition that products of this kind are seen externally in any considerable quantity.

If the discharge be of a creamy character, tolerably profuse

and constant, it proceeds from the cervix uteri, or, as I have found in a considerable number of instances, from the cavity of the body of the uterus. But the secretion of the cervix alone is, or may be, rendered puriform by admixture with the vaginal secretions.

It is thus evident that, from the physical characters of the discharge alone, we cannot obtain in all cases positive information as to the precise spot from which it is poured out. Where circumstances render it necessary that more exact information be obtained an examination must be resorted to.

#### PURULENT DISCHARGES.

*a.* When the purulent discharge is *continuous* the origin of the discharge is probably the vaginal mucous membrane, the uterine cervical glands, the surface of a cancerous or other ulcer, suppuration of retained membranes or placenta after abortion, etc. An important class of cases, in which there is continuous discharge, are those in which the purulent discharge is the result of *gonorrhæal* infection.

*b. Non-continuous purulent discharge.*—In the other class of cases—those in which there is a purulent discharge only lasting for a time, ceasing, and then recurring—the source of the discharge is either the uterine cavity itself, or an abscess situated near the vagina, and opening into that canal. Purulent discharges, whether continuous or non-continuous, far more often than has been supposed, proceed from the cavity of the body of the uterus; and we have positive evidence of this origin in cases where, either from contraction of the uterine canal at the junction of the body and cervix (produced by senile atrophy, flexion of the uterus, etc.), an accumulation takes place within the body of the uterus, and in which the symptom we are now considering—occasional and abrupt discharge of purulent fluid from the generative passages—is observed. Sir C. M. Clarke and Dr. Ashwell both allude to a form of purulent discharge produced, as they describe, by formation and retention of pus in the uterine cavity, the pus so formed escaping from time to time in the manner just described. In a case of Dr. Ashwell's the purulent fluid expelled amounted to nearly half a pint on two or three occasions. I have observed many precisely similar cases, though the quantity so expelled has not been so great as this. Profuse discharge of pus from suppuration of a polypus of the uterus has been noticed (Safford Lee). Dr.



Matthews Duncan<sup>1</sup> has called attention to such an occurrence, particularly in the case of old women who have ceased to menstruate. In a woman who is still menstruating the symptoms are dysmenorrhœa, a peculiar feeling of tightness round the loins, sickness or vomiting, etc.; these symptoms finding sudden relief in the discharge of a certain quantity of purulent fluid. If menstruation have ceased, the symptoms slightly vary. Flexions of the uterus in women who have borne children are very frequently indeed, according to my experience, attended with accumulation and periodic expulsion of a purulent fluid from the uterine cavity. I lay the more stress upon this fact, as it is one which has not yet seized hold on professional appreciation, and probably Dr. Ashwell's cases were of this kind.

One of the most important causes of this occasional purulent discharge is *pelvic abscess*. The abscess may follow after, or be the result of, parturition; in which case the other signs present would lead to a suspicion as to the origin of the purulent discharge in question. Another highly interesting class of cases is that in which an abscess, the result of suppuration of the contents of the cyst of a peri-uterine hæmatocele, discharges its contents into the vagina. In both classes of cases, however, the discharge appears suddenly, and they markedly differ in this respect from ordinary cases of purulent leucorrhœa.

#### SANIOUS DISCHARGES.

These evidently contain a certain admixture of blood-elements. In women the subjects of profuse menstruation, as the discharge of blood is becoming less, there is generally to be observed a period when there is a sanious discharge. Where an hypertrophied (so called ulcerated) condition of the villi lining the cervix is present, slight bleeding readily occurs. Sanious discharges are not unfrequently found to be due to the presence of morbid growths within, or organic disease of, the uterus; fungoid condition of the uterine mucous lining, malignant ulceration of the os uteri, etc.; and we find, combined, leucorrhœa and very slight but continuous hæmorrhage. In polypus of the uterus, such sanious discharge, alternating with hæmorrhages or with colourless leucorrhœal discharge, is observed. Whatever, in fact, is capable of giving rise to hæmorrhage may occasion discharge of a sanious character. In cases of pelvic hæmatocele, where an opening has formed between the cyst

<sup>1</sup> *Edinburgh Medical Journal*, March 1860.

and the vagina, and the contents are in process of evacuation, there will be a sanious discharge. The presence of a more or less continuous sanious discharge is a condition of things requiring a careful digital examination.

#### OFFENSIVE DISCHARGES.

This quality of the discharge is important in reference to the determination of the disease present in certain cases. Discharges of an offensive character have been usually considered as absolutely indicative of the existence of *cancer*. It is true that, in almost all cases of cancer of the uterus there is to be remarked a particularly offensive odour of the discharge proceeding from the vagina; but it is also true that it may be absent. The smell of cancerous discharge has a peculiar fœtor: so peculiar that it can hardly be mistaken for anything else, according to some authorities. It is certain, however, that the peculiarity is not equally appreciable by different observers; the absence of a peculiarly fœtid odour, or indeed the absence of fœtor of any kind, does not shut out the possibility of the presence of cancer. *Sarcoma of the uterus* gives rise to a very peculiarly offensive discharge. This fact cannot be too much insisted on, for there are records of cases in which disastrous results have followed the belief on the part of the practitioner that cancer of the uterus was necessarily associated with presence of a fœtid discharge. The later the stage of the cancerous discharge the more constant is the fœtor, the ulcerative process appearing to be generally associated with it. It must not be forgotten that there may be fœtor in any of the diseases of the uterine organs in which hæmorrhage is present, if cleanliness be not observed; clots of blood retained and decomposing are especially liable to give rise to it. And it sometimes occurs in cases where pessaries are employed.

Another cause of offensive discharge from the vagina is the presence of a dead ovum or portions of the fetal membranes, etc., in the uterus. It is more generally connected with retention of the whole or portions of the *placenta*. The previous existence of pregnancy and the occurrence of delivery would point out the nature of the case. In some few cases which have fallen under my own observation, the presence of a fœtid discharge was connected with retroversion of the gravid uterus occasioning such retention, and I have observed the same circumstance in conjunction with retention of portions of the ovum with anteflexion.

Offensive discharges in women *during the puerperal state* are so obviously connected therewith, that the relation of the two things as cause and effect could hardly escape recognition.

Apart from the existence of pregnancy, *flexions* of the uterus causing retention of fluid within it may give rise to offensive discharge. It sometimes happens that the discharges from the vagina are offensive without any obvious cause. Thus cases are observed in which the discharge at the menstrual period is offensive, and preceded or followed by leucorrhœa having the same character. In such cases flexion of the uterus will generally prove to be the cause. I have seen cases of this kind in quite young women.

It is possible that the hymen may, by preventing free escape of fluid from the vagina, be the cause of an offensive discharge.

Want of cleanliness is occasionally connected with the presence of an unpleasant odour of the discharges from the generative organs. When the sebaceous follicles situated at the entrance of the vagina secrete copiously, this phenomenon may be observed.

Among the physical qualities of discharges from the vagina, *their effects on the surface of the body with which they come into contact* have to be considered. Some discharges from the vagina are quite devoid of irritating properties; but the reverse is often observed. Irritating effects, such as redness, excoriation, attended with smarting pain of the skin of the inner side of the thighs and the external genitals, are common in connection with excessive vaginal secretion, however produced; the constant contact with the vaginal secretion, often in a state of hyper-acidity, produces this result. Another class of cases in which excoriations of the same parts are frequently seen, are those attended with a caustic irritating discharge from the ulcerating surface of a cancerous disease of the cervix uteri. Again, *symphilitic* sores may spread and produce others in the immediate neighbourhood; and we take advantage of the knowledge of this fact for purposes of diagnosis, when we inoculate the skin of the thigh with discharge from a sore on the labia, or on the vaginal wall, which we suspect to be of venereal character.

#### GONORRHOEAL AND SYPHILITIC DISCHARGES.

The interest attaching to the subject renders it necessary to devote a short time to the consideration of *symphilitic* and *gonorrhœal leucorrhœa*, and to mention some facts useful in the elucidation of cases suspected to be of this nature.



The subject is a difficult one, the pathology of these affections being still in a very unsettled condition, and observers being by no means agreed as to what is to be called gonorrhœa, and what syphilis. Thus Dr. Whitehead considered the uterus, in cases of gonorrhœa, more affected than the vagina; by others the vagina is considered to be the proper seat of the affection. Dr. Tyler Smith believed that many of the cases set down by Dr. Whitehead as cases of gonorrhœal leucorrhœa were cases in which the leucorrhœa was of syphilitic origin.

There appears unquestionably to be a *syphilitic leucorrhœa*; but the difficulty is to distinguish it from the more simple form. It may be considered as probable that it is present when the leucorrhœa has been present for some time, associated with frequent previous abortions or birth of dead children; when secondary syphilitic affections of the throat, skin, bones, etc., are present; but above all when it appears to be influenced by the administration of anti-syphilitic remedies. Further, the state of the glands in the groin is important. These become enlarged and indurated when syphilitic leucorrhœa is present, but do not suppurate; when there is suppuration, it must be considered as indicating the improbability that the individual is the subject of syphilis, or that she is likely to present secondary symptoms. It must not be forgotten that the glands in the groin may suppurate in scrofulous individuals who, it may be, are also affected with genuine syphilis. On external or internal examination, condylomata, ulcerations, or other characteristic evidences of syphilis, may be observed. The discharge from the vagina is said to be often very great in quantity in these cases, to be yellowish in colour, and to contain much mucus. On these latter characters little absolute reliance can be placed for purposes of diagnosis.

In reference to the diagnosis of supposed *gonorrhœa*, it has always been found very difficult to substantiate the presence of the virus in the female subject, for the reason that the discharge arising from gonorrhœa and that of ordinary leucorrhœa are very much alike. Gonorrhœa in the female is, in its worst form, an intense vaginitis, the discharge being made up of epithelial plasma and purulent matter; more frequently it is a vulvitis, the inflammatory action being limited to the mucous surfaces at the vulva. The meatus urinarius very frequently participates in the discharge and irritation in cases of gonorrhœa. The collateral facts relating to the coming on of the attack are characteristic: the attack begins somewhat suddenly; there are heat, pain, and

burning along the course of the urethra, all intensified and increased during micturition ; there is usually also a discharge from the urethra. Sometimes blood follows the evacuation of the bladder. When the gonorrhœal discharge has become chronic, the urinary irritation may have become so much lessened in degree as not to attract attention unless inquired after. If the presence of a discharge from the urethra can be made out, it will very materially assist the diagnosis. Sir C. M. Clarke thought the diagnosis of gonorrhœa impossible ; and it must be confessed that this is very often found to be the case. A method of observation by which the diagnosis is often much assisted, consists in ascertaining the effect of sexual intercourse in suspected cases : only it is liable to this source of fallacy, that a discharge in one sex producing a discharge in the other does not prove that the infecting individual is the subject of gonorrhœa ; for it is a well-authenticated fact that an apparently simple discharge in the male may give rise to a discharge in the female, and *vice versâ*. Cases in which these points rise up for determination require the exercise of great caution and careful investigation before giving an opinion. A case of simple balanitis in the male, contracted by intercourse, may, it is said, be distinguished from a case of gonorrhœa by the fact that the symptoms of the former affection come on a few hours only after intercourse, whereas in gonorrhœa there is a period of incubation of from four to fourteen days, attended with chordee.<sup>1</sup>

It is impossible for the practitioner to exercise too great caution in pronouncing an opinion for or against the specific nature of a discharge from the female generative organs. In the words of the late Dr. Ashwell, ‘it is always his duty to cure the disease, but rarely to venture upon an exposition of its nature. If he can positively affirm that it is of simple origin, let him do so, if suspicion has been aroused ; if not, it is better to avoid any distinct allusion to the matter.’<sup>2</sup>

#### ETIOLOGY.

From what has been already stated in reference to the varieties of physical characters observed in the non-sanguineous discharges

<sup>1</sup> See case by Mr. Nunn, quoted by Dr. Tyler Smith in his work *On Leucorrhœa*, p. 129.

<sup>2</sup> *Diseases of Women*, p. 175.

from the generative organs, it will be gathered that the *causes* of these discharges are many.

They resolve themselves into two, *constitutional* and *local* causes.

CONSTITUTIONAL OR GENERAL CAUSES.—The first of these is *climate*. In warm countries, leucorrhœa is more common than elsewhere, and coexists with a great tendency to menorrhagia, which indeed, in common with the leucorrhœa, arises in great measure from deficient tonicity of the uterine vessels, frequently the forerunner of serious uterine disease. Moist and damp situations appear to have a similar effect: thus the inhabitants of Holland, Belgium, and the fenny districts of England are said to be peculiarly liable to leucorrhœa.

A state of *plethora* is capable of giving rise to leucorrhœa. Women who live too well and take but little exercise suffer in this way. When the opposite state of things is present, and the system is reduced by losses of blood or defective nutrition by ‘chronic starvation,’ in fact, to a condition of *anæmia*, leucorrhœa may be one of the results observed. Whether in the case of a plethoric or an anæmic patient, leucorrhœa may occur irrespectively of child-bearing. It very frequently happens, however, that the influence of *child-bearing* is very considerable in causing leucorrhœa, particularly in anæmic individuals. The effect of child-bearing is twofold. Women in an anæmic, half-starved condition, whose blood is thin and watery, frequently suffer to a very troublesome extent from leucorrhœa during the period of pregnancy; after pregnancy has ended, the increased actions of the various glands connected with the generative organs continues, the effect of which may be persistence of the leucorrhœa.

In individuals of *phthisical tendency*, leucorrhœa is more apt to arise in connection with child-bearing; and in such persons, indeed, very frequently independently of it. In some cases, *over-lactation*, by inducing a state of extreme debility, appears to produce leucorrhœa, often in an extreme degree of profuseness.

The relations of *menstrual disorder* and leucorrhœa as cause and effect require a word or two. Leucorrhœa is often present in individuals in whom menstruation is absent; and Dr. Tyler Smith<sup>1</sup> considered the leucorrhœa as vicarious of the menstrual secretion in such cases. It is questionable how far this view of the case is correct. It appears more rational to suppose that both the leucorrhœa and the menstrual deficiency are due to derange-

<sup>1</sup> *On Leucorrhœa.*



ment of some one or other of the vital processes. Thus the individual is rendered weak by over-lactation or some other debilitating agency; the menstrual secretion becomes less and less healthy, and less sanguineous in character; she becomes affected with leucorrhœa; the leucorrhœa is then naturally more profuse at the menstrual period, when the generative organs are in a state of engorgement, than at other times.

Chronic diseases of the lungs, especially *emphysema* and *valvular affections of the heart*, are often observed in association with chronic leucorrhœa, which is, under such circumstances, difficult to cure.

There are some general observations which apply to all these cases in which leucorrhœal discharge arises from a constitutional or general cause—that, as a rule, symptoms which are usually associated more particularly with actual pathological changes in the uterus, such as pain, tenderness, etc., are, at all events at first, absent. Further, the quantity of the discharge is not very considerable, unless there be some local reason for it; and lastly, the discharge itself, when produced by purely constitutional causes, is less liable to become offensive or sanious than in cases where there is some actual lesion of the generative organs present.

When leucorrhœa is present, associated with any general defective condition of the bodily health, it may be taken for granted that, if the leucorrhœa be not absolutely dependent thereon (a relation which is found to subsist in many cases), it is at all events aggravated and rendered persistent thereby.

#### LOCAL CAUSES.

By far the most common local cause of leucorrhœa is *flexion of the uterus*. Flexion of the uterus gives rise to leucorrhœa either by obstructing the free outlet of secretions from the uterine cavity or by keeping up a continuous congestion of the whole organ. The drainage of the uterine cavity is deficient, the shape of the uterus is mechanically unfavourable to easy escape of fluid from its interior, and the internal os is partly closed by the compression there produced by the uterine flexion. Hence accumulation of leucorrhœal fluid, sanious just at the end of menstruation, puriform later on, coming away in gushes at intervals in many cases. The fluid so retained *in utero* irritates it, excites more secretion, and we have now a condition spoken of as ‘endo-

metritis.' The interior of the uterus is never quite empty, and is sometimes much distended with the retained secretion.

In other cases the chronic flexion, by keeping up a continuous congestion of the cervix uteri, gives rise to excessive secretion from the os and cervix. Still more is this liable to occur if the os be widely open or everted, and the delicate everted surface of the interior of the cervix subjected to friction and pressure against the floor of the vagina.

It may be stated as a general rule that chronic and obstinate cases of leucorrhœa will be almost invariably found on investigation to be due to uterine flexion. In some few cases this troublesome leucorrhœa is almost the only symptom present; in the majority of cases other marked symptoms of uterine flexion will be found to exist.

Endometritis is very commonly due, as above explained, to defective drainage of the uterus. But in some cases there occurs in connection therewith excessive growth or, more properly speaking, excessive congestion of the uterine mucous lining, so-called 'fungosities.' Under these circumstances the secretion from the uterine interior is very profuse, and the leucorrhœal discharge proportionately great in quantity.

Lacerations of the cervix uteri are undoubtedly a cause of leucorrhœa. The irritation and inflammation of the everted surfaces of the interior of the cervix occasions both loss of blood and discharge of a leucorrhœal character.

*Hypertrophy of the cervix uteri* or of the *body of the uterus*, fibroid growths in the uterus, either in the form of *fibroid tumours*, *fibroid polypi*, or *mucous polypi*, these are almost always accompanied with leucorrhœa, sometimes with very abundant watery or non-sanguineous discharge. *Inversion of the uterus*, *cancer of the uterus* in its various forms, give rise to characteristic non-sanguineous discharges often very profuse in quantity. *Pro-lapsus of the uterus* or of the *bladder*, *growths in the vagina*, are other causes. *Excessive sexual intercourse*, masturbation, the latter generally accompanied by a very relaxed condition of the vaginal aperture, are causes of leucorrhœa.

*Ascarides in the rectum* are not uncommonly the cause of leucorrhœa, not only in children, but in adults. In such cases the ascarides appear to travel from the rectum to the vagina. *Hæmorrhoids*, *vascular tumour of the meatus urinarius*, may also produce leucorrhœa.

The *specific* causes of leucorrhœa are *gonorrhœa* and *sypilis*. In these cases the affection is more generally limited to the

*vulva*, but the inflammatory actions may extend higher up, even as far as the uterus itself, and in a few cases probably as far as the ovaries (*gonorrhœal ovaritis*). The diagnosis of the specific causes of leucorrhœa has been already alluded to (p. 515).

#### TREATMENT OF LEUCORRHOEA.

The treatment of leucorrhœa (excluding from the consideration discharges of a specific nature) is of two kinds, *general and local*. In most cases, a combination of the two is the more suitable, and yields most satisfactory results. Even when there is a tangible alteration of the uterus, giving rise to leucorrhœa, general treatment is often of very great service; although, in order to cure the disease giving rise to the discharge, local measures may be indispensable.

To remove the *cause* of the leucorrhœa is the first indication. The treatment must have regard primarily to that. The cause must if possible be removed. There are few cases of leucorrhœa in which the uterus is altogether sound. The organ is usually congested, large, its tissues relaxed, and the activity of the glandular apparatus lining the cervix unnaturally increased; under such circumstances the primary object is to remove the condition of the uterus on which the leucorrhœa depends (see ‘Treatment of Chronic Congestion of the Uterus’; also chapter on ‘Abnormal Conditions of the Lining of the Uterus’). The next element in the treatment is of the utmost importance; in all cases it is absolutely essential to supervise the due action of the digestive organs, and of the great cutaneous surface. Plans of treatment, in other particulars the most judiciously contrived, may prove useless unless these primary points be attended to. The quantity, quality, and mode of taking food must be carefully adjusted to the requirements of the case. The skin must be kept warm, and its due action insured by employment of friction, baths, and exercise. In patients who have been long the subjects of leucorrhœal discharge, the importance of carefully regulating the ‘mode of life’ cannot be over-estimated; and it is the more necessary to insist on this, as not unfrequently the practitioner on the one hand, and the patient on the other, pay far too little attention to these essentials; the result of this neglect being a temporary, and not a radical, cure of the affection.

*Resort to watering-places.*—Several watering-places have obtained repute from the efficacy of the mineral waters there to be



obtained in removing leucorrhœa, especially that of a chronic form. It is unquestionable that very good effects are frequently obtained under the use of the waters in question; the effect produced results in many such cases from the change of air, the perfect rest and relief from the ordinary cares and anxieties, the regular exercise, simple diet, and the change in the mode of life generally, all of which play, unquestionably, a most important part in bringing about the cure, as much as from the specific curative power of the water itself. The improvement in the general health which follows an improvement in the general nutritional activity, is usually rapidly followed by a cessation or diminution of the leucorrhœa. In a certain number of cases we find great difficulty in persuading patients to follow up systematically the course of treatment enjoined while they are living in their own houses, surrounded by home associations, and in a manner tied down to home habits; and for this reason it is sometimes necessary to send patients to watering-places in order that they may be induced to give themselves a fair chance of recovery. In the choice of a watering-place, regard must be had to the special condition and requirements of the patient. Recent flexions of the uterus, the organ being still in a soft condition, may be much improved indeed, and the leucorrhœa sometimes cured, by a course of baths; but when due to a chronic flexion only temporary benefit will be derived, unless other means of cure are also adopted.

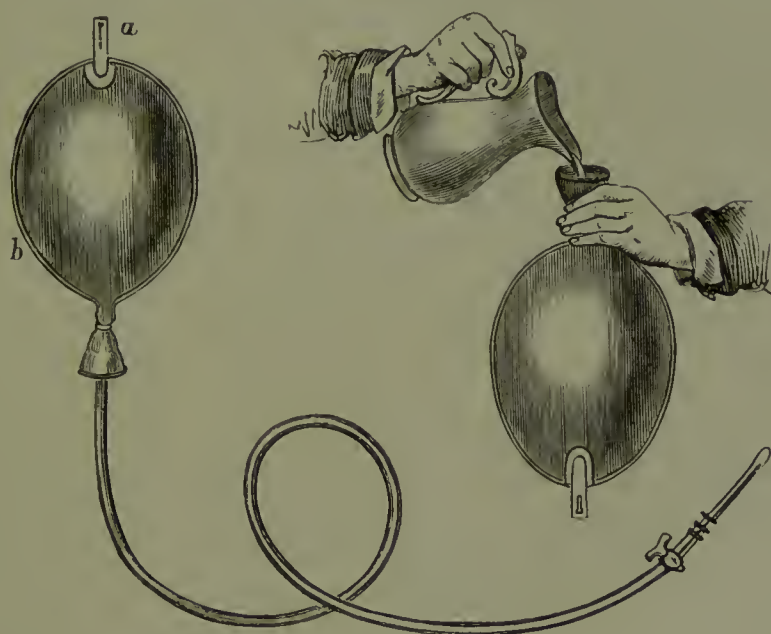
*Baths.*—These are very powerful therapeutic agents in the treatment of cases of leucorrhœa dependent on constitutional causes. The use of the bath has the effect of determining the blood to the skin, and thus relieves the congestion of the internal organs usually present in these cases. The condition of the patient must be regarded in reference to the choice of the form of bath. The most simple form of bath is the ‘sponge-bath,’ the patient being directed to sponge the whole of the body night and morning with warm or tepid water; the skin being rubbed dry by means of a coarse towel, and the friction continued for some minutes. In women who are not strong the employment of cold baths is not to be recommended. Then comes the hip-bath. The hip-bath may be either of pure, salt, or medicated warm water. If the hip-bath be medicated with the view of the fluid acting upon the interior of the vagina, means must be taken to insure the passage of the fluid into this canal. Various contrivances are recommended for this purpose; a short medium-sized Ferguson’s

speculum is one which may be advantageously employed. The simple hip-bath is, however, very serviceable. After the bath, the skin should be rubbed as in the case of the sponge-bath. With due care, the hip-bath or sponge-bath, alone or together, may be used in all cases, however debilitated the patient may be. It is necessary that a 'reaction,' as it is termed, take place after the bath, or it does harm, and the patient suffers from headache or other inconvenience for some hours after. There are some cases which are most benefited by the warm bath, in which the patient is wholly immersed. Thus, in cases of leucorrhœa which, from the severity of the symptoms and suddenness of their invasion, may be termed *acute*, the warm bath is of the greatest utility.

*Injections.*—Judiciously used, injections are of the greatest value in the treatment of leucorrhœa. In many cases they have a curative effect; in all cases they are of some service; and in certain cases they are almost indispensable. But it is not less true that leucorrhœa may be often cured without recourse to injections at all.

The first point to be attended to in the employment of injections is the form of instrument to be used. It is in most cases mere trifling to employ a small syringe. What is necessary is an apparatus by means of which a considerable quantity of fluid may be thrown up and obtain access to the cervix uteri. A large-sized gum-elastic vaginal pipe, rather longer than the speculum, open above by five or six tolerably large perforations, should be first introduced into the vagina so as to reach the os uteri. Having been introduced, the lower end of the pipe is then to be connected with the pipe of the injection apparatus. This is made in a variety of forms. Higginson's or Kennedy's apparatus is convenient for the purpose. I have, however, found it exceedingly difficult to induce patients, especially those who are weakly and debilitated, to use any instrument requiring the application of manual force, however slight, for a sufficient length of time to do good; moreover, the quantity of fluid capable of being used at each operation is too restricted. A somewhat continuous irrigation of the cervix uteri is necessary, and this is not to be had by the ordinary apparatus—unless, indeed, by taking unusual pains or trouble in the matter. In order to supply the defect in question, I have had constructed a very simple and effective instrument, by which the patient can have the benefit of irrigation of the vaginal part of the uterus of some minutes' duration, and without the

necessity for manual effort, such as pumping, of any kind. An indiarubber bag or reservoir, capable of holding nearly a gallon of water, has attached to it a long flexible pipe, which ends in the vaginal exit tube. The bag filled with water is hung up above the patient, or placed on an article of furniture a little above the patient's body. The water descends by the action of gravitation alone; the rapidity of the flow is regulated by simply turning a stopcock, placed just outside the vaginal tube, and the water flows until the reservoir is empty. The douche apparatus in question has the advantage of great portability and simplicity. The douche should, it is hardly necessary to observe, be

FIG. 158.<sup>1</sup>

used with caution in cases where pregnancy is suspected to be present.

The next question is as to the nature of the fluid to be injected. Very much benefit will be derived from the use of water, if only a sufficient quantity be used at each injection. And for a variety of reasons, not the least of which is that it is always accessible, and no preparation or forethought is required, it is advantageous to use water alone. In the former editions of this work I have recommended the use of cold water in ordinary cases, but a more extended experience has led me to the conclusion that in some cases injurious effects are liable to result from the use of quite cold water, and, unless in exceptional cases, I believe warm water at

<sup>1</sup> The 'uterine douche,' constructed as described above, is to be procured of Messrs. Savory & Moore, New Bond Street.



about  $85^{\circ}$  or  $90^{\circ}$  is to be preferred (see also chapter on ‘Congestion of the Uterus’).

A variety of substances are used mixed with water, and constituting *medicated* injections. Most of these are considered beneficial from the astringent properties they possess. Alum, sulphate of zinc, nitrate of silver, decoction of oak bark, or tannin, are those most ordinarily used. A combination of tannin and alum (one or two drachms of tannin with four drachms of alum to two pints of water), recommended by more than one eminent authority, I have found very convenient. In all cases where medicated injections are used, it is desirable to employ, first, a simple injection of water, and to throw up the medicated liquid last. It is frequently found necessary, in obstinate cases, to change the injection from time to time. A particular remedy loses its effect after a few days’ use.

*Medicated pessaries.*—These are prepared with cacao butter, have the shape of a rifle bullet, and contain various astringent or caustic substances in suitable quantities. When cold, they are firm and easily adjusted in position at the os uteri. The warmth of the body soon liquefies the pessary, and leaves its active constituents free.

Blisters to the lumbar or sacral region are sometimes employed in obstinate cases of leucorrhœa.

Injections of a medicated nature are now and then necessary to obviate the offensiveness of the discharge which may be present, as in cases of cancer, cauliflower excrescence of the os uteri, etc. In such cases, antiseptic agents, *e.g.* diluted tincture of iodine, tincture of iron, perchloride of iron suspended in glycerine, chloralum, etc., and applied by means of cotton wool, or lint, are exceedingly useful.

In cases where the discharge is acrid, and gives rise externally to irritation, it is necessary to order frequent ablutions with tepid water. A lotion containing a little carbonate or biborate of soda in solution is occasionally found serviceable in such cases.

*Internal remedies.*—The object with which we give internal remedies in leucorrhœa is usually that of remedying the constitutional derangement, whatever that may be, which is present. Purgatives may be necessary to produce regular action of the bowels, especially at first—and of these it is better to give small doses frequently than large doses at longer intervals. Where the patient is chlorotic, aloes may be given; but in other cases it is

to be avoided. The debility with which in most cases leucorrhœa is associated, necessitates the employment of tonic remedies, of which the best is unquestionably iron: less probably depends on the particular form of the drug than on the fitness of the case for iron in any shape. Certain therapeutic agents, such as cubebs, copaiba, etc., have been recommended in leucorrhœa, as having special effects in diminishing secretions from mucous surfaces. The ergot of rye has a better claim to our notice. I have used it in cases where the uterus was in a lax, congested condition, with the double effect of relieving the profuse menstruation and leucorrhœa sometimes associated. As a rule we cannot expect much specific effect from internal remedies in cases of leucorrhœa. Stimulants are very frequently necessary in the treatment of chronic cases of leucorrhœa attended with debility and prostration; they are to be looked upon in some instances quite as essential as good food. The stimulant selected should be one which is found to suit the patient. The administration of stimulants is to be reprehended when the patient is plethoric, and when the viscera, pelvic and abdominal, are loaded with blood, and the quantity should be carefully specified and overlooked, care being taken that when the patient is stronger the dose be diminished. The leucorrhœa endemic in fenny districts is treated successfully by bark, wine, gin, and tea and coffee.

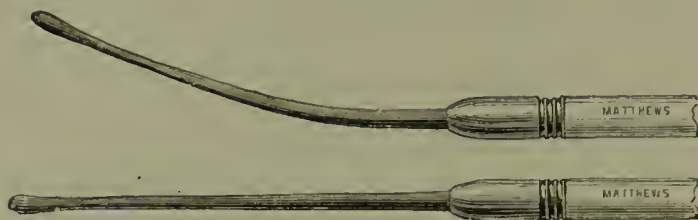
Schönbein and Aran have recommended lavements containing aloes suspended in mucilage or soap and water, in the treatment of chronic leucorrhœa. The lavements are to be used every day, or every other day, the rectum having been first washed out by water alone. The remedy in question must be used with caution. It may here be remarked that aloes formed one of the principal ingredients in the celebrated pills of Stahl—in high repute many years ago for the cure of leucorrhœa.<sup>1</sup>

The treatment of leucorrhœa dependent on local disorders of various kinds necessarily involves the removal of the special cause. In all cases where the leucorrhœa is dependent on deficient drainage of the uterine cavity, the principal object in view will be to facilitate the escape of the fluid from the uterus (see 'Treatment of Flexions'). Cases of this kind which have been hitherto known under the term 'endometritis' have been frequently treated by internal applications to the interior of the uterine cavity. Thus Dr. Playfair, who has devoted much attention to the subject, recommends the application of various caustic

<sup>1</sup> See Dr. D. D. Davis's work, vol. i. p. 367.

or semi-caustic substances to the uterine interior by means of a probe of peculiar construction round which is wrapped cotton wool charged with the selected application. First the interior

FIG. 159.<sup>1</sup>



of the uterus is wiped out by means of cotton wool wrapped round the probe, and the liquid used is then introduced in the same way. The application Dr. Playfair prefers is either tincture of iodine or equal parts of crystallised carbolic acid and glycerine.<sup>2</sup>

<sup>1</sup> Fig. 159 represents Playfair's probe, which is of flexible metal. The probe can be fixed to a boxwood handle sufficiently long for it to be used through the speculum.

<sup>2</sup> Meeting of British Medical Association, Cork. *Brit. Med. Journ.* March 1880.



## CHAPTER XXXVI.

## NERVOUS DISORDERS REFERABLE TO THE UTERUS —HYSTERO-NEUROSES.—GENERAL CONSIDERATIONS.

Peculiarities of the Nervous Relations of the Uterus—Reflex Excitability of the Uterus—General View of the so-called Hysterical Diseases—Question as to the ‘Central’ and ‘Peripheric’ Origin discussed—Arguments for Uterine Origin—The principal Hystero-neuroses Enumerated: Nausea and Vomiting; Hysteria and Hystero-epilepsy; Reflex Mental Disturbances; Cephalalgia.

THE uterus is an organ having peculiar relations to the nervous system. It has comparatively little nervous susceptibility of one kind, but is largely endowed with nervous excitability of another kind. The healthy uterus is very little sensitive to the touch, and almost every accessible part of it may be touched without giving rise to sensation *when the organ is unaffected with disease*. But the uterus is a most sensitive organ in regard to its reflex excitability. The disorders which are produced in consequence of this reflex excitability of the uterus constitute a very interesting class of affections, and they have at all times apparently attracted much attention. In early times the word ‘hysteria,’ employed to designate them, conveyed also a notion as to their source, which many modern writers appear, as I consider most erroneously, to set on one side altogether.

In hysterical disorders we have present for consideration two elements:—

## 1. THE CONDITION OF THE NERVOUS CENTRES.

*a.* Simply unduly impressionable.*A.* Emotionally.*B.* Impressionable in an undue degree to reflex disturbing influences.*b.* Actually diseased.

## 2. PRESENCE OF PARTICULAR PERIPHERIC (REFLEX-EXCITING) IRRITATION.

*a.* In the uterus.*b.* In the ovary.*c.* Elsewhere.

The phenomena present in hysteria, using the term in its most general sense, affect more or less the whole machinery of the body, the muscles of the limbs and body, the involuntary muscles, as of the stomach and other organs, as well as other general disturbances in the sensitiveness of various parts,—all implying that the nervous centres which control this extensive machinery are implicated. The two theories of the ‘central’ and the ‘peripheric’ origin of hysteria or ‘hysterical’ disorders are not in any way incompatible the one with the other, as will be apparent from reading the above statement of the possible conditions present in cases where hysterical phenomena are observed. It is probable that the condition of the central organs is really the more important of the two, and that hysterical phenomena only occur in cases where the central organs are unduly impressionable. And in one sense of the word they may be said therefore to be diseased. But we have to go further than this, and, admitting the presence of a ‘diseased’ condition of the nervous centres, we have to explain the alternate presence and absence of hysterical phenomena in the same case. In order to explain that it is necessary to assume either (1) that the central organs undergo at various times changes, or (2) that they are operated upon from without through the intervention of nerves distributed to other organs of the body. In other words, there is either (1) a centrally originated nervous disturbance, or (2) a peripheric irritant action giving rise to the manifestations in question.

My own observations have led me to the conclusion that in hysteria and hysterical disorders we have for the most part what have been termed since the days of Marshall Hall ‘reflex’ symptoms, originated by a disturbance or irritation *primarily* acting, not in the central nervous system, but at its periphery, the central nervous system being in many cases unduly impressionable, and therefore more readily acted on by reflex disturbing agencies. In certain cases the disturbance may be originated emotionally.

It has been long the opinion of those who have made diseases of the generative organs their especial study—dating, in fact, from the Hippocratic era—that irritation of these organs plays a very important part in the production of ‘hysteria.’

Up to the present time the state of knowledge in reference to the diseases of the generative organs in women has not been sufficiently advanced to enable gynaecologists to define precisely the *modus operandi* and the exact nature of the irritation involving the female generative organs which is capable of exciting hys-

terical phenomena, and hence the assertion of gynæcologists to the effect that these hysterical phenomena do originate in the sexual organs has been discredited. The fact that attacks resembling those observed in women are liable to occur in the male sex has been made the basis of an argument that the female generative organs can have nothing to do with hysteria. This is not, however, a reasonable conclusion. It is well known that convulsions, for instance, may be produced in various ways; the nervous central organs are presumably not very different in the two sexes. There is nothing extraordinary in the fact that convulsions or spasmodic movements should be observed in both sexes, the convulsive movements being so much alike as to be hardly distinguishable. But that proves nothing as to the exciting cause of the attacks in question, nor does it in any way render it impossible that the uterus or the ovaries may be the exciting cause of such attacks when they are present in an individual of the female sex. Looking at the predominance of the emotional nervous element in the female sex; looking also at the peculiarities of the sexual organs in the female, it would rather be anticipated that irritation of these organs would be more likely to derange the nervous centres in the female than irritation of the sexual organs in the male. There are parallelisms between the two sexes in regard to the capability of irritations of the sexual organs to produce central disturbances which have been long well known, but the female possesses more organs than the male. The testicle and the ovary may be considered to balance each other, so to speak, but the woman possesses an additional organ—the uterus—to which there is no parallel, worth the name at least, in the male.

In the last edition of this work (1872) I described, under the head of ‘Nervous disorders referable to the uterus,’ hysteria, epileptiform convulsions, nausea, and vomiting, as symptoms due to reflex irritation seated in the uterus. Since that time further observation has enabled me to verify in many cases the truth of the theory there put forward. Other observers have also been working in the same direction. Dr. Engelmann has published a very interesting paper entitled ‘On Hystero-neuroses,’<sup>1</sup> a term adapted very exactly as a heading under which to classify and arrange those affections in which the uterus can be shown to have an important controlling or originating influence. In this paper he describes *seriatim* the reflex disturbances of the brain, the eye, the pharynx, the larynx, the bronchi, the breasts, the joints, the

<sup>1</sup> *Amer. Gynec. Trans.* vol. ii. 1878.



stomach, and the hystero-neurosis of pregnancy. Certain cases of epilepsy are attributed by Dr. Engelmann to reflex irritation proceeding from the uterus, but he does not apparently attribute the phenomenon of hysterical convulsions to this source. In this respect Dr. Engelmann has not taken the same road as myself. But in regard to the hystero-neurosis of the stomach resulting in vomiting, Dr. Engelmann's views appear to be quite in accordance with my own, and he gives many cases to show the connection between uterine irritation and presence of severe vomiting; not only so, but in reference to the vomiting of pregnancy his observations are singularly confirmatory of those which I published some years ago.

The term 'hystero-neurosis' employed by Dr. Engelmann seems to me to be a very valuable one.

The precise relationship subsisting between the uterus and the ovaries as disturbing elements is still matter for discussion. The conclusion which I have arrived at, taking the various facts into consideration which are adducible, is that in the majority of cases the uterus is responsible for reflex disturbance. This is not, however, the conclusion arrived at by all authorities, and indeed the source of the so-called hysterical affections has been of late years decidedly attributed to the ovaries by the latest writer on the subject, Professor Charcot, whose researches on the subject of hysteria and hystero-epilepsy have deservedly attracted so much attention. Charcot adopts the view of Negrier that the ovaries are responsible for the convulsive manifestation in question.

The neuroses, reflex effects of uterine irritation, appear to be many in number. Arranged in the order of their frequency they are :—

NAUSEA AND VOMITING.

HYSTERICAL ATTACKS AND SO-CALLED 'HYSTERICAL' SENSATIONS.

HYSTERO-EPILEPSY.

REFLEX MENTAL DISTURBANCES.

CEPHALALGIA.

## CHAPTER XXXVII.

HYSTERO-NEUROSES (*continued*).—HYSTERICAL NAUSEA AND VOMITING, DUE TO REFLEX UTERINE IRRITATION.

Nausea and Vomiting very common Symptoms in Cases of Uterine Disease—It is a Reflex Hystero-neurosis—Frequent Association with Uterine Flexion—Various Conditions of Softness or Hardness of the Flexed Uterus—Various Degrees of Severity of the Nausea or Sickness—Illustrative Cases—Engelmann's Views.

## TREATMENT.

It is an unquestionable fact that nausea and vomiting are exceedingly commonly observed in connection with the presence of uterine disease. This is a fact which many years of careful observation has made me acquainted with. This gastric disturbance appears to be of reflex origin, and to be originated in the uterus when in a state of disease. There is no doubt that disease of the ovaries is also capable of originating reflex nausea and vomiting, but my own observation leads me to the conclusion that the uterus is responsible for the production of this troublesome reflex disturbance in the large majority of cases. It is very rare to meet with a case of severe flexion of the uterus unaccompanied with such reflex irritation or nausea, although this affection is now and then unattended with nausea or vomiting. This reflex nausea and vomiting may be very slight, or it may be most severe in frequency and in degree. It is by far the most common of the reflex symptoms (hystero-neuroses) producible by disease of the uterus, the hysterical class of reflex symptoms occurring far more rarely. This reflex nausea and vomiting is one of the most common of the symptoms observed in cases of uterine disease (see chapter on 'Symptomatology of the Uterus').

It is surprising, looking at the extreme frequency with which nausea and vomiting really occur, that more has not been said about these gastric disturbances in connection with the presence of uterine disease. In the last edition of this work special notice was directed to this important subject. Dr. Engelmann<sup>1</sup> of

<sup>1</sup> On 'Hystero-neuroses.' *Amer. Gynæc. Trans.* vol. ii. 1878.

St. Louis has more recently published some valuable remarks thereon, which are in full conformity with the conclusions I have myself been led to form on the matter.

The disease which more especially seems to occasion this gastric reflex disturbance is flexion of the uterus. The proof of the truth of this statement has in numberless cases been made evident to me by the remarkable results in the relief of the sickness and nausea which have been observed to follow treatment directed to the cure of the flexion of the uterus present in such cases. These results have been so uniform, the exceptions so very rare in which marked relief has not been thus obtained, that the body of evidence is irresistible.

In the last edition of this work (1872) the following paragraph occurs :—

*‘Connection between nausea and vomiting and disease of the uterus.—*For many years I have carefully and rigidly analysed the cases of uterine disease which have come before me, with the endeavour to establish definite relations between the symptoms and the alterations or lesions present. Sickness and nausea are so frequently attendant on uterine disease that this symptom necessarily comes very commonly under observation. The facts which have presented themselves have led me to establish a very close connection between nausea and sickness, and flexions of the uterus. This connection I have repeatedly observed; and, in fact, nausea and vomiting are rather common symptoms in cases of flexion of the non-impregnated uterus, though it by no means follows that every case of flexion will be attended with nausea and vomiting. Endeavouring to trace the connection between the flexion and the nausea or vomiting, I was led to the conclusion, from an analysis of the facts, that it was more likely to be observed in cases where the flexion led to retention of the secretions of the organ, as in dysmenorrhœa, when the menstrual blood does not readily escape, owing to the constriction at the seat of the bend of the uterus, and in certain other cases where the flexion was severe, independently of such evidence of retention of fluid in the uterus. Thus, severe flexion alone, or coupled with retention of fluid in the uterus, have seemed to me to be demonstrably and unmistakably the cause or essential accompaniment of the troublesome nausea and vomiting observed in the non-pregnant condition. The os and cervix uteri are not uncommonly under such circumstances turgid, congested, and otherwise somewhat changed. The fulness, congestion, or so-called inflammation of the os and cervix



uteri has been noticed in connection with obstinate vomiting by previous observers, and has been assumed to be the cause of the symptom. It will quite readily fall in with my view of the matter to accept this position, but my explanation goes beyond it, and is to the effect that the condition of congestion of the os is really secondary (in by far the majority of instances) to the more important lesion, the alteration in the shape (flexion) of the uterus.'

It is now eleven years or upwards since I became acquainted with the remarkable connection subsisting between sickness and flexions of the uterus, and since that time I have had many opportunities for verifying the accuracy of this conclusion. Indeed, I observe the symptom so frequently in cases of flexion of the uterus, that I have come to look upon it as almost a part and parcel of the disease. Flexions do not invariably give rise to vomiting and nausea. But it may be stated, as a rule to which there are few exceptions, that when a patient presenting other uterine symptoms is found to be liable to nausea or sickness recurring from time to time, it may be pretty confidently predicted that the nausea and sickness are due to uterine flexion. When the sickness is obstinate and of long standing, the prediction may be still more confidently made. I have on many occasions seen patients who had been supposed to be suffering from chronic disease of the stomach, owing to the persistent nausea or vomiting, and in which it was proved beyond question that the uterus was the organ really responsible for these symptoms. In the course of my experience, I have seen as many as fifteen to twenty cases where the long-continued sickness due to uterine flexion had so fearfully reduced the vital power by the starvation it gave rise to, that recovery seemed almost impossible. And even in the worst of these cases the symptoms ceased almost directly the source of irritation was removed.

In very many cases the gastric disturbance is less severe, but yet it is a serious matter; and in a larger number of cases still it is present as an occasional symptom, only the patient considers that she is troubled with 'biliousness,' and is not aware that the supposed biliousness is really caused by the uterus. Again, in not a few cases the sickness is only observed at the menstrual periods: sometimes it is so severe at those times that the patient is literally *hors de combat* for one or two days owing to its intensity.

It is pretty constantly observed that these symptoms are

increased by movement, or by exertion of any kind : even sitting at the table for meals is often enough to bring on sickness or nausea, the patient being obliged to leave the table or ceasing to be able to take food. This is a mechanical effect of the position of the body, which by intensifying the flexion for the moment brings on the sickness. Sickness of this kind is most pernicious in its effects, for very little food is taken, and in the end the case becomes one of chronic starvation.

When anteflexion is present, the recumbent dorsal position gives relief to the sickness. But when the uterus is retroflexed, the dorsal recumbent position often aggravates it. The reason for which is sufficiently obvious.

According to my experience, the cases most difficult to cure are those in which the uterus is extremely soft, and follows the action of gravity most readily. It is not easy in some of these cases to preserve the uterus in a state of real repose. The uterus is readily straightened, but it is not easy to preserve it in this condition. Slight retroflexion follows on the removal of the anteflexion, and *vice versâ*. The recurrence of the sickness in such cases indicates that the treatment is insufficient. I have frequently had occasion to observe this recurrence, and have found the foregoing to be the explanation of it.

But in many of the severe cases, the uterus is not remarkably soft at the time the patient comes under observation. Perhaps the case has been partly cured, and, the power of taking nourishment having returned, the uterus has become tolerably firm and rigid ; indeed, in some cases there is actual hypertrophy of portions of the uterus—*e.g.*, the lips of the cervix uteri. Then an aggravation of the flexion occurs, and the sickness returns with redoubled energy. Under these circumstances the relief afforded by straightening the uterus is often almost magical in its rapidity.

The *modus operandi* of the flexion in inducing this reflex symptom is a matter of great interest. It appears to me to be due to the compression of uterine nerves, consequent on the squeezing or stretching of certain portions of the uterine tissues. (See remarks on this subject in a former chapter, at page 175.) Careful observation has convinced me that in most cases the irritation has its starting-point at the situation where the compression is greatest, viz., at the angle of the flexion—for this part is often found *sensitive to the touch* in such cases, and it is found that the straightening process has the effect of removing simultaneously both the sickness and the undue sensitiveness to touch.

*Case of acute vomiting from retroflexion of the uterus.*—Some years ago I saw a lady who was at that time suffering from aggravated nausea and vomiting. She had then been unable to take food of any description for over two weeks. Everything in the shape of food was instantly returned, and the eminent practitioner who had been in attendance upon her expressed to me his fears that she would actually perish from inanition. On examination it was found that the patient was suffering from severe retroflexion of the uterus, which there was evidence to show was of long standing, and which had probably undergone acute aggravation within the previous few months. Nothing could be more distressing than the state to which the patient was reduced. Conjointly with treatment to restore the shape of the uterus, it was necessary to sustain life by the administration of doses of beef-tea by one teaspoonful at a time given very frequently, this being the utmost the patient could take for some time after I began to see her, although this particular symptom—the sickness—underwent a material improvement the moment proper local treatment was adopted.

In the treatment of this case, it invariably happened, when the treatment was for various reasons suspended or intermitted, and the instrument used in the treatment removed for a time, that the sickness returned.

*A case of acute hysterical vomiting, of ten months' duration, caused by displacement of the uterus.*<sup>1</sup>—A young lady, æt. 20, the subject of this case, was admitted into the All Saints' Institution, Gower Street, in December 1879. The general history of the case was as follows: She has always been accustomed to take a good deal of exercise, has led a very active life, but has not taken for some years what would be considered an average quantity of food: the reason for which has been a general disinclination, coupled apparently with the existence of a notion on her part that she did not require much. For the last two or three years she has been in the habit of playing lawn-tennis a good deal, and has done duty in playing the harmonium at a place of worship. Menstruation has never been regular. There have been occasional intervals of two months, but at times the periods have occurred too often and too profusely. There has been a complete cessation of menstruation for the last ten months, since which time she has been ill.

*Present illness.*—The patient has been ill for ten months. Since February 1879 she has suffered from obstinate sickness, which, at first not very severe, gradually became worse and worse. She has not been able to retain food in the stomach in the ordinary way for the whole of this period. Of late, the sickness has become even more severe. She has now for some little time been able to retain only koumiss in small quantities at a time, the smallest particle of any solid food being rejected at once. She has become excessively emaciated. Her weight a year ago was ten stone; it is now stated to be five or five and a half stone only. Her

<sup>1</sup> This case is reported in the *Trans. of the Clin. Soc.*, vol. xiii. p. 316.



weakness is extreme—she has been unable to sleep, and her general condition is deplorable. Any attempt to walk about and take exercise has been attended with aggravation of the symptoms. Menstruation has not occurred for ten months, as already observed. It was conjectured by her previous medical attendant that she was suffering from some uterine displacement.

*Condition on admission (December 19, 1879).*—Patient constantly sick; skin moist; there is a commencing bed-sore over the sacrum. Bowels open; micturition frequent. Pulse exceedingly feeble. Examination of the pelvis and its contents showed that the uterus was very low down in the pelvis, much swollen, and in a condition of acute anteversion, with some considerable amount of ante flexion. The uterus seemed very wide from side to side, owing to the general engorgement. It was decided that the sickness was due to the condition of the uterus. In regard to the cause of the displacement and distortion, the patient did not at the time mention it; but a few weeks later she said that in the month of February 1879 she one day jumped from the top of some seats in a schoolroom, six feet in height, to the floor. Another young lady who was with her at the time performed the same feat. They were both of them made sick by the effort. The other young lady went to bed for six weeks, feeling ill, and having, as she thought, a cold. This patient took no notice of the effects of the leap, and had, in fact, forgotten it. But the sickness appears to have set in at precisely this time; and there seems little doubt that the leap was responsible for the mischief.

For the first week the treatment adopted was as follows: Nutrient enemata of beef-tea, with a small quantity of brandy and a few drops of laudanum, were administered three times daily. The patient was ordered to take only a little koumiss by the mouth. Once every hour, during the day, she was placed in the knee-elbow position for two or three minutes, in order to raise the uterus from its low position. At the beginning of the second week she had much improved; the sickness was less, but the patient extremely irritable; no sleep, except for a very short space of time; complaint of great headache, and a condition of general unrest. The uterine sound was now used for the first time, and by its means the uterus was raised, and the position of the fundus changed. The effect of the use of the sound was at first, for two days, to reproduce the sickness to some extent, but it then became mitigated. At the end of the second week her condition was much improved: she was still taking nutrient enemata, and iced champagne by the mouth. Brand's essence of beef and some other food were now given, but with not much success, the stomach still rejecting the greater part of things administered, except the champagne. The koumiss was given up during the second week.

Fourteen days after admission, a small sized ebonite cradle pessary was introduced, and it has since remained undisturbed. During the

third week, food began to be tolerated by the stomach. At first, Darby's peptone was given in small doses, mixed with a little water, frequently. In three days, the patient tiring of this, gravy soup from a confectioner's was given, one, two, or three spoonfuls at a time; three to four glasses of champagne daily, and about one and a half ounces of brandy, the latter with enemata; also biscuits in small quantity. The sickness entirely left her at the end of this, the third week. During the fourth week, the improvement was very marked. She could now take meat in the solid state, and the enemata were abandoned. The power of sleep was restored, and the condition changed for one of absolute tranquillity. The pulse, which on admission and during the first two weeks was under 50, now beat at 80 to the minute. After the fourth week, the patient's appetite became ravenous. It seemed impossible to give her enough; all kinds of food were equally agreeable to her—the anxiety when one meal was over was for the arrival of the next. Six weeks after admission she was permitted to get up, and in a week walked round the room, a quarter of an hour at a time, without any ill effects. Seven weeks after admission the patient was convalescent and fit to leave the Institution. Her condition is now wonderfully altered for the better; the cheeks have filled out, and she has entirely lost the look of extreme illness. All kinds of food are taken, and in large quantities. She has gained two stone in weight. Six weeks afterwards, menstruation returned, and the patient was reported perfectly well, and in full enjoyment of active life.

*Remarks.*—The case is, in my opinion, to be read thus: The patient was ill-nourished, weakly, and in a bad state of health, before the actual illness began. The menstrual irregularities show that the uterus was in a disturbed condition also. It is probable that its tissues were soft, wanting in resistance, and that it was somewhat displaced and altered in shape before the commencement of the severe illness. The leap, which occurred in February 1879, probably produced a sudden and considerable displacement of the fundus uteri downwards and forwards—acute anteversion and flexion; and from that time up to the period of admission the uterus remained in its displaced, distorted condition. A secondary result occurred, viz., a continued congestion and engorgement and consequent swelling of the uterus. Menstruation was thus also suppressed. The sickness was a reflex phenomenon due entirely to the irritation set up in the uterus. It completely disappeared when the uterus was restored to its proper shape and position. This restoration was effected by the use of the knee-elbow position, by the sound, and by the cradle pessary. There would have been no objection to the use of the cradle pessary at first, but it was thought best to employ other methods of raising the uterus during the first fortnight.

*Acute vomiting for two years, due to ante flexion of the uterus.*—Another case was that of a single lady of 25 years of age who had been sent to Dr. Wilson Fox under the notion that she was suffering from

ulceration of the stomach. Dr. Wilson Fox conjectured the uterus was at fault, and it proved so. This patient had suffered for two years from almost incessant vomiting and occasional hæmatemesis. The uterus was found soft, anteflexed (with posterior rotation). Suitable treatment in a short time completely removed the vomiting.

*Severe vomiting due to anteflexion of the uterus.*—Another almost similar case was likewise sent to me by Dr. Wilson Fox, in which the patient, a young lady, was reduced to the extreme of prostration—so much so, indeed, that her life was despaired of—in consequence of anteflexion of an extremely soft atonic uterus. This case equally yielded to a treatment directed to the rectification of the distortion and displacement of the uterus.

The following case is reported by Mr. L. C. Parkes, M.B., who watched the case and assisted in the treatment:—

*Case of anteflexion and excessive continued vomiting.*—Miss W., æt. 25. When at school her appetite was very small, and her principal meal was in the evening, not in the middle of the day. Enjoyed good health and menstruated regularly every four weeks until a little over three years ago, when she accompanied a younger sister to Davos Platz. There she remained seven months. She notes she ‘had no monthly periods during this time, as the cold stopped them.’ Since her return she has menstruated very little, and states that on two occasions the periods were absent eleven and seven months. She says the fluid has been often very thick and lumpy. Miss W. has been under medical treatment for three years, less one month, at first for ulcers on the legs, which healed, but repeatedly broke down again a few weeks after healing; almost constant sickness, and frequent attacks of obstinate constipation and tympanitic distension of the abdomen, these attacks simulating obstruction of the bowels and occurring repeatedly, until her medical attendant came to regard them as hysterical, and advised her being sent away from home to be treated in an institution; and she was accordingly admitted into the All Saints’ Institution on February 10.

Previous to admission her dietary seems to have been extremely low for many months, containing meat or fish only once a day in very small quantities. The other solid food consisted mainly of bread and butter twice a day, in very small quantities also. For a period of a year she has been sick after the conclusion of each meal. The sickness comes on five to ten minutes after she has finished eating. She states that she has suffered for a long time from constant pain in the left side, which is relieved by hypodermic injections of morphia. These morphia injections have been given three times daily during the last year. In the autumn of 1881 nutrient enemata were administered for a period of fourteen weeks, and aperient enemata daily for the last year. She has at times taken pancreatised and peptonised food.

*Condition on admission.*—The patient is pale and emaciated, weight



6 st. 10 lbs. The mucous membranes are not very anæmic. The tongue is very red and clean. She complains of a constant pain in the left side above and in the left groin. On examination the uterus was found to be markedly anteflexed and its substance very soft and flabby. For the first three or four days after admission the patient took food well, meat, vegetables, etc., without any subsequent sickness. The morphia injections were discontinued on admission.

On the 5th day after admission the patient began to be sick at first only once or twice in the day.

On February 22 a No 1 ebonite bar cradle pessary was introduced. This was followed by an excessive muco-sanguineous discharge. The sickness gradually became worse, every kind of food being very soon rejected. The diet was accordingly reduced to a teaspoonful of Brand's essence every two hours, and  $\frac{3}{4}$  ii. brandy in the day. The abdomen was well painted with tinct. iodi., and an aperient enema given every morning.

On February 25 the Brand's essence and brandy were discontinued and enemata of beef-tea and brandy substituted, one every six hours. After two days of this treatment the enemata were returned, unaltered in colour but of bad odour, so they were discontinued.

On February 27 the pessary was removed. The sickness is, if anything, worse than before. She is now taking rusks and champagne, which are partly retained. The sound was introduced on the 28th and the uterus straightened.

March 1.—Oysters were added to the rusks and champagne. She manages to retain this fairly well. There is still the same amount of vaginal discharge. March 6.—An elastic No 2 cradle pessary was introduced. The sickness continues about the same. The nutrient injections have been resumed, but return unaltered. March 8.—The patient is evidently losing ground and appears weaker and more depressed. The pulse is over 100 and compressible. All food taken by the mouth is returned, the solid parts being precipitated from the fluid. Her condition was now critical and gave rise to a good deal of alarm; fears were entertained as to her recovery, owing to the excessive weakness and prostration and the apparent absence of digestive power. March 9.—She now takes peptonised beef-jelly and milk, but is unable to retain it. A hypodermic injection of morphia gr.  $\frac{1}{4}$  daily is now given. The peptonised food is discontinued.

After this date, Miss W. began to improve. She returned to the former diet of rusks, oysters, and champagne, which seemed to cause the least sickness. The pulse gradually became stronger and less frequent, and the tongue lost by degrees its vivid red irritable character. Toast and tea, bacon, fish, bread and butter, were gradually added to the diet and superseded the oysters and champagne. The sickness gradually became less frequent, and ceased altogether before the end of March. By the middle of April she was able to get out of bed and sit up, and was

taking meals of fish, meat, etc. On May 1 the period commenced, but only lasted a day; the pain in the side was still present, but was decidedly less than before. At the end of May, Miss W. continued to make good progress and was going down to the sea-side. Her weight was then 8 st. 2 lbs., gain, since admission, being 1 st. and 8 lbs.

The constant pain felt in the left inguinal region in this case was due to the ante flexion of the uterus.

The foregoing are typical severe cases, but many more could be quoted in which the symptoms were less severe, but the results of treatment equally satisfactory. In the report of sixty-seven cases of uterine flexion treated in the All Saints' Institution during seven years, published in vol. xxii. of the 'Obstetrical Transactions,' I have given particulars of certain cases of this kind.

It may be useful to quote here some of the conclusions arrived at by Engelmann<sup>1</sup> on this subject.

Engelmann regards affections of the stomach as the most frequent of the hystero-neuroses. He divides them into three classes: (A) constant; (B) menstrual; (C) due to pregnancy.

Under A the symptoms are fulness of epigastric region, loss of appetite, nausea, and vomiting. He gives three cases of (1) retroversion, when symptoms were at once relieved by a Hodge pessary; (2) case of a valvular closure of internal os by a small fibroid causing vomiting; (3) intractable vomiting, etc., for several years, caused by indurated conical cervix with stenosis of canal, cured by incision and dilatation. (Probably a case of ante flexion.—G. H.)

Under B, he states that at least one fourth of his hospital patients complain of the gastric trouble in connection with menstruation. The symptoms were most marked when the menstrual period was not regular or normal. 'Of seven private cases of menstrual hystero-neurosis of the stomach, only one was free from severe uterine disease.'

Under C, Engelmann classes the nausea, the vomiting, the epigastric distension, etc., occasionally found in pregnancy among the hystero-neurosis.

*Case of Sympathetic Hystero-neurosis of the Stomach* (Dr. F. Formento, New York).<sup>2</sup> This was a case of intractable vomiting and hysterical convulsions, lasting for several years, caused by a peculiar condition of the os uteri. Patient married at æt. 21. Dysmenorrhœa before marriage. Suppression for three months after marriage. No pregnancy, but

<sup>1</sup> *Loc. cit.*

<sup>2</sup> *Amer. Journ. Obst.* vol. x. p. 455.

vomiting observed occasionally. The vomiting increased in severity, and became almost constant. Great uneasiness at epigastrium. Nutrition became greatly impaired; extreme prostration; prolonged anæmic condition. After a few months, convulsive attacks, a tetanic condition of the muscles, sometimes a cataleptic condition, at other times trismus, opisthotonos, these attacks occurring several times a month. Various methods of treatment unavailing. Menstruation going on, but dysmenorrhœa observed. On examination, conical cervix, hard, resistant to touch, almost fibrous, of a deep red colour and smooth surface, external os so small as to be almost invisible, not allowing smallest sound to penetrate; uterus of normal size and position.

Sims's operation was performed. Immediate relief of vomiting. Restoration of strength complete. After ten months, return of the symptoms. Renewal of operation, os having become contracted, and sponges and dilators used once or twice a month for some months. Recurrency and a third and a fourth repetition. Will she ever recover permanently? says the author, of this case.

The *nausea and vomiting of pregnancy* has been diseussed in a separate chapter (see p. 353). The views there enunciated as to the cause of vomiting in pregnancy have been suggested by the observation, in the first place, of cases of vomiting in the non-pregnant condition; and it will be found that a careful study of the phenomena of vomiting and nausea in the pregnant and in the non-pregnant condition reveals an uniform and identical cause in both sets of cases.

#### TREATMENT.

The effects of mechanical treatment (by which is meant not necessarily the application of instruments) in relieving the sickness in the cases now under consideration are most remarkable. In the milder variety of cases the horizontal position is sufficient to give relief, but when the uterus is markedly flexed this is not sufficient, for some cases require the dorsal position (cases of ante flexion) and others require the prone position (cases of retro flexion). In the really severe cases little benefit will be derived from the horizontal position alone—internal mechanical treatment, use of the sound, use of suitable pessaries, etc., are required; and judiciously selected treatment of this kind is capable of effecting very marked benefit—the cessation of the sickness or its speedy amelioration. Internal mechanical treatment is, however, not always successful just at first. The first effect of such treatment is sometimes to produce a temporary intensification of



the severe symptoms, and it then seems as if the treatment was worse than useless. But this is a temporary effort only ; the case soon assumes a more favourable aspect, and a marked improvement sets in most decided and encouraging in character. This temporary bad effect was observed in the case mentioned at page 538, and the patient was so ill that it seemed as if the treatment had better be omitted. It was, however, persisted in, with the best results. I only know of one case where the treatment could not be continued : in this instance it was deemed advisable to wait for a time, as the patient's condition was not a critical one.

In cases where the restoration of the uterus to its proper shape is delayed, or when the sickness arises from other alterations of the uterus, palliative measures are required. Above all, the strength has to be sustained. In severe cases, where the stomach persistently rejects food, it is best at once to give up the idea of administering solid food of any kind. The patient should be made to suck small pieces of ice from time to time, and a teaspoonful of milk, or milk-and-water, should be swallowed every half-hour, or more frequently, if possible. Minute quantities of brandy and water or champagne may be given every hour. Drugs given by the mouth, in really severe cases, appear to do more harm than good. An opiate liniment rubbed in over the epigastric region, or morphia applied endermically, has been found of great service. If the milk or other nutritive material, such as beef-tea, which may be tried, are rejected by the stomach, it is best to relinquish for a time the attempt to feed the patient by the mouth at all, and to have recourse to injections. A beef-tea enema, with a few drops of laudanum and two or three teaspoonfuls of brandy, may be given as often as may be judged necessary, the return to a more natural method of feeding being for a time postponed. Sedatives, antispasmodics, or medicines of other kinds, may or may not be indicated, according to the peculiarities of the case, but they will be best administered in these severe cases by the rectum.

In the less severe cases, where food is capable of being taken by the stomach with more or less facility, and where the vomiting is only occasional, a carefully adjusted diet will still be the best means of giving the patient relief, and it will be a matter of experiment as to what kind of food suits best. Soda-water and milk are very generally borne by the stomach, but more substantial nourishment may be given, such as the case admits of. Pepsine is often very serviceable in cases where the digestive powers are much weakened. Various forms of pre-digested food are now

available : Dr. William Roberts' (of Manchester) peptonised preparations, etc. Raw oysters succeeded in one case when all other kinds of food failed.

Counter-irritation, by blisters to the epigastrium, have been strongly recommended, and I have myself used them with advantage. But since I have traced the connection between obstinate nausea and vomiting, and presence of flexions, I have rarely had occasion to use these or other palliative procedures, the removal of the uterine flexion answering every purpose.

## CHAPTER XXXVIII.

HYSTERO-NEUROSES (*continued*).—HYSTERIA, HYSTERICAL CONVULSIONS, HYSTERO-EPILEPSY.

HYSTERIA—HYSTERICAL CONVULSIONS—HYSTERO-EPILEPSY.—Various Degrees of Hysteria—Milder Forms of the Affection—Phenomena observed in the simple Hysterie Paroxysm—More Severe Cases in which Convulsions are observed—Character of the Convulsions—Differentiation from Epilepsy considered—Hystero-epilepsy—Views of Gowers and Chareot—Author's Observations on the Etiology of Hysteria and Hystero-epilepsy—Series of Eighteen Cases illustrating the Connection between Presence of Flexions of the Uterus and Attacks of Hysteria or Hystero-epilepsy—Criticism of Chareot's Views as to the Effects of Ovarian Compression—General Conclusions.

## TREATMENT.

THE phenomena of hysteria, using the word in the widest sense, may be conveniently classed as follows:—

I. A state of predisposition to hysteria, evidenced by excess of emotional tendencies, behaviour generally marked, or liable to be marked, by exaggeration of emotional actions.

II. Presence of hysterical paroxysms, but without convulsions.

III. Presence of hysterical fits with distinct convulsions.

IV. Hysterical fits allied closely to epileptic attacks, and generally described as hystero-epilepsy.

V. Simulation of other diseases, *e.g.* joint disease.

I. *The hysterical predisposition*.—An important generalisation has been made by many writers, viz. that hysterical phenomena are more usually witnessed when there is a condition of 'debility' present. Debility is frequently synonymous with irritability; weakly individuals are frequently 'nervous,' which is only another way of saying that they are too readily excited and are too impressionable. The word 'hysterical' is frequently used as a synonym for 'weak.' A common mistake appears, however, to be the use of the word 'fanciful' in describing some of these hysterical symptoms.

The hysterically predisposed patient may never have a real hysterical attack in the absence of any decided exciting cause.



II. *Presence of actual hysterical paroxysms, without convulsions.*—The hysteric paroxysm in its simplest form is commonly ushered in by pain or discomfort at or near the umbilicus. Next occurs a sensation as of something rising to the throat, a feeling of choking or suffocation, or a sensation of a ball in the throat—*globus hystericus*. Rapidly the patient then bursts into laughing or crying or sobbing, at the end of which there follows a subsidence of the ebullition and recovery of composure, with a sensation of exhaustion. Coincidentally with the termination of the paroxysm a flow of limpid urine is often observed.

Some of the incidents just described may be absent.

III. *Presence of hysterical fits with distinct convulsions.*—In this class of cases the phenomena are very marked. We have the simple hysteric paroxysm, but something more. The patient falls into a state of apparent unconsciousness very rapidly, and becomes affected with convulsive action of a very decided character. Practically it is necessary, owing to the close relationship between this class of cases and the next (No. IV.), to consider the two together.

III. and IV. *Hysterical fits with convulsions and hystero-epilepsy* (so-called).—Epileptic and hysterical convulsions have been frequently differentiated one from the other, but it appears that although there are typical forms in a considerable number of cases, there are many instances in which the phenomena present have characters partly of epileptic, and partly of an hysterical nature.

The following is an epitome of the description given by Dr. Gowers<sup>1</sup> in his recently-published treatise:—

In epilepsy (*grand mal*) there is loss of consciousness, together with continuous or intermitting convulsions, one or both. In slighter attacks (*petit mal*) there is usually transient loss of consciousness with little or no convulsion.

‘The hysterical attacks vary much in character. There may be merely trifling emotional and spasmodic disturbance, such as is commonly understood by the designation, or there may be most severe and long-continued spasm, apparently rivalling a severe epileptic fit in the violence of the muscular contractions, attended with impairment, if not actual loss of consciousness, and often with paroxysms of delirium. But the chief part of the muscular spasm which occurs in these attacks differs from that of an epileptic fit in being so grouped as to resemble that which may be produced by

<sup>1</sup> *Epilepsy and other Chronic Convulsive Diseases, etc.* (Churchill, 1881), p. 2.

the will. The convulsive movements have therefore a quasi-purposive aspect, they are *co-ordinate* in character though excessive in degree. At the onset there may be tonic or clonic spasm (a pseudo-epileptic stage), but this rarely resembles closely that which occurs in epilepsy.'

Instead of the term 'hysterical' Dr. Gowers uses the word 'hysteroid'—a term proposed by Dr. W. Roberts to denominate the severe fits of the 'co-ordinated' convulsion—preferring this term to 'epileptic hysteria,' 'hysterical epilepsy,' or hysterio-epilepsy.'

The two classes, epileptic and hysterical, shade into each other. Thus 'the severe hysteroid fits may recur during years, in very much the same manner as do epileptic fits. . . . Moreover, hysteroid or co-ordinated convulsion often succeeds a true epileptic fit. . . . It is often most difficult, even impossible, to learn from the description of hysteroid convulsions, whether they occur alone or whether they succeed slight epileptic seizures. . . . The initial convulsion of many pure hysteroid fits is pseudo-epileptic. . . . There are rare cases in which the attacks are actually of a nature intermediate between the two.'

In 1,000 cases observed by Dr. Gowers in which the form of convulsion could be ascertained, it was co-ordinated or hysteroid in 185 or 18½ per cent., and 'up to the fourth decade of life, one-third of the chronic convulsive cases presenting hysteroid phenomena (primary or part epileptic) occur in males.'

It does not appear that Dr. Gowers draws any sharp line between the slight 'hysterical' and the severe hysteroid or co-ordinated attacks. Thus, he says, 'these attacks (hysteroid) vary greatly in severity and character. When slight they are of the trifling character popularly known as a "fit of hysterics," into which an emotional patient will work herself up, and in which there is no distinct affection of consciousness. When severe the violence of the spasmodic movements is almost inconceivable. . . . Similar variations are seen in the mental disturbance which attends the attack. This may be trifling, and amount only to an abnormal emotional state, or it may be so severe that for a time the patient is in a state of maniacal frenzy.' So again, the laryngeal spasm observed in severe cases is 'no doubt an extreme degree of the disturbance which in slighter measure causes the globus hystericus.' Moreover, 'in the patients who suffer from these convulsions other symptoms of hysteria are frequent, and consist of the globus

<sup>1</sup> Gowers, *op. cit.* p. 19.

hystericus, aphonia, and the like, but these are usually slight in degree.'

The 'hysteroid' convulsions described as above by Dr Gowers include the attacks observed in the female sex as well as the male. And it is evident that in regard to the attacks themselves there is no striking difference between 'hysteroid' attacks in men and women.

Charcot's views on the subject of classification are as follows:—

A. Hysteria and epilepsy may remain distinct from each other in the same individual. 1. Hysteria may be grafted on epilepsy. 2. Epilepsy may be superadded to hysteria.

B. The hysteria and the epilepsy are coeval. These are 'seizure fits.' The so-called epileptic form he regards as the highest degree of development of that combination of hysteria.

Attacks of hystero-epilepsy attaining the severity of those observed by MM. Charcot and Richer in Paris are not witnessed in this country. On this subject Dr. Gowers says that 'the attacks observed in the Salpêtrière patients commence by a convulsive seizure resembling a true epileptic fit very closely, whereas in the attacks which occur in the natives of this country, the initial tonic stage (though it may resemble that seen in certain aberrant forms of epilepsy) bear little resemblance to the spasm of a typical epileptic fit.'

The observations of Charcot are most interesting, and the phenomena of the hysterical paroxysm have been described by him, and still more recently by Richer,<sup>1</sup> in a manner which leaves little to be desired so far as the outward manifestations, convulsions, spasms, anæsthesia, paralyses, temporary intellectual disturbances, etc., are concerned. And these delineations are also most complete in regard to the manner in which the manifestations in question are capable of being modified or influenced by the action of *external* agencies. The ebullition, as it may be termed, has, in short, been pictured in a most graphic manner.

Circumstances have led me to investigate the various hysterical manifestations observable, from an *etiological* point of view. I had no predisposition to take any particular view of the matter, and it was only by repeated observation that I became convinced that the uterus is generally in a state of irritation in cases where these manifestations are observed; thus, in fact, confirming the more ancient theory of the subject. And I was induced to take

<sup>1</sup> *Etudes Cliniques sur l'Hystéro-épilepsie ou Grande Hystérie.* Par Dr. Paul Richer. Paris: Delahaye. 1881.



this view of the influence (etiologically) of the uterus from the circumstance that in cases where the two conditions were conjoined—viz. uterine irritation and liability to attack—the attacks always appeared to cease on removing the irritation. In fact, experience revealed to me that in the course of treating the disorder of the uterus, the liability to hysterical attacks ceased. Further observation showed that the peculiar irritation productive of hysterical symptoms and attacks was always one and the same—viz. a flexed and distorted state of the uterus. Since I first became aware of this relation I have omitted no opportunity which has occurred to me for verifying and repeating the observation. Cases of this kind now referred to do not present themselves with great frequency; cases of marked hysterical paroxysms, so far as my experience goes, are not very common, but during the last ten years, during which I have been testing the matter in question, several instances have fallen under my notice; and as yet the facts I have collected are strictly confirmatory of the truth of the above generalisation.

There appear to be two classes of cases:—

1. Those in which the attacks are induced primarily by some strong emotion—the reception of distressing news, a fright of any kind, a severe mental shock, etc. Here the operation of the causes is a direct action on the central nervous system, which in such cases may or may not be weakened in some way, and predisposed, or not, to be affected by an excitement acting from without. These cases are undoubtedly met with in practice, but they seem to be rather rare.

2. Those in which the attacks are induced primarily by a reflex disturbance from within, and quite distinctly so. This class of cases is numerically far more frequent than those classed in the foregoing list. They include cases in which the hysterical manifestations are severe, and more or less constantly liable to occur.

Now, the evidence which I have been able to collect, to me convincingly shows that the reflex irritation causing these attacks and other hysterical manifestations is an irritation having its seat in the uterus, and that the particular irritation most potent in producing the reflex disturbance is flexion of the uterus. This view is one which I expressed about twelve years ago.

In the course of my professional experience I have only met with cases which seemed to be cases of hysteria produced in the reflex manner, and I have seen none in which hysteria of a severe character has been brought about emotionally. I do not deny the

existence of the latter class of cases (certain of M. Charcot's cases, for instance), but it so happens that I have seen none. On the other hand, I have met with many cases coming under the former category, and in such cases the uterus was found to be the cause of the symptoms; the facts of the cases, the results of treatment, and the whole phenomena of the cases in question, indicating in what has seemed to me a most unmistakable manner that this view of the case was a correct one.

What the precise nature of the condition of the uterus is which is capable of giving rise to such remarkable manifestations is a matter of great interest. The results of my observations have led me to the conclusion that in these cases the uterus is in a condition of what may be termed traumatic congestion, by which is meant that the blood current is forcibly arrested in the tissues of the uterus. The common cause of such arrest in these cases is compression of the organ at its centre by the bending or flexion of the uterus. There occurs as a result acute congestion of the body of the uterus, which becomes aggravated by certain movements and diminished by others. Whence it happens that exertions capable of increasing the flexion are found to bring on the attacks or other hysterical manifestations, while, as a rule, rest and the horizontal position are equally potent in removing them or in preventing their occurrence.

The word 'traumatic' seems suitable as explaining the nature of the congestion present under these circumstances.

The intensity of the traumatic congestion present in different cases appears to vary, but its main characteristics seem to be the same in all instances that I have observed. And the worst and severest cases of hysterical convulsions have been those in which the degree of traumatic congestion of the uterus was actually greatest.

There is another etiological moment present—viz., the compression of the nervous filaments of the uterine tissue at the precise spot where the flexion compression is greatest. When the uterus is forcibly flexed, such compression occurs.

At the recent International Medical Congress I exhibited the model of a section of the uterus constructed in sponge. The model is six times the normal length of the uterus, but the thickness of the walls and the due relation of the parts are carefully preserved. The model is constructed in order to exhibit the effects of acute flexion of the uterus on the uterine tissues. It is observed that when the sponge uterus is bent so as to imitate the

change of shape observed in acute flexion of the organ, the sponge is greatly compressed and squeezed together on the concave side of the bend. The model thus enables us to understand that the centre of the uterus is the seat of great compression in cases of flexion, which compression is increased by increase of the flexion and relieved by removal of the flexion. The sponge model also serves to illustrate the production of traumatic congestion, for the compression due to flexion is the cause of the interference with the circulation of the uterus.

Whether the traumatic congestion of the uterus or the flexion compression is the more important in giving rise to reflex hysterical manifestation, it does not appear to be easy to determine. Possibly both moments are important. And it may be that the

FIG. 160.<sup>1</sup>

presence of traumatic congestion operates in inducing hysterical phenomena by virtue of the compression of the uterine nerves in those parts of the uterus which are actually the seat of the congestion.

The accompanying drawings represent flexions of the uterus severe in degree. Fig. 160 shows a third degree of ante flexion of the uterus. Fig. 161 represents the uterus in a case of retroflexion in the third degree. The seat of the compression is principally the wall of the uterus on the concave side of the flexion.

I adduce in support of the views now enunciated a series of eighteen cases, arranged in chronological order, observed by me during the ten years from 1870 to 1880. I have observed other

<sup>1</sup> Ante flexion of uterus (third degree).



cases also, of which records have not been kept. The following series are all of which I have kept records. There are six cases in which the uterus was retroflexed and twelve in which ante flexion was observed.

CASE I. *Chronic retroflexion; severe hysterical attacks.*—Mrs. ——— had been liable to frequent severe hysterical attacks (after which she usually remained in a state of quasi-insensibility for some time) ever since her first confinement, which occurred upwards of twelve years previously. Latterly severe sickness had occurred. The uterus was found acutely retroflexed. There was an absolute cessation of the hysterical attacks from the time the treatment of the retroflexion was commenced.

FIG. 161.<sup>1</sup>



CASE II. *Acute ante flexion of the uterus; almost entire suspension of menstruation for two years; severe hysterical attacks.*—The following is an abstract of the case, which was more fully published in the last edition of this work.<sup>2</sup> The patient was single, æt. 19, a dressmaker. Two years ago, became attacked with 'hysterics,' at first severe, afterwards less so. On one occasion she lost her voice for five months. Has had lately a peculiar cough. Menstruation only twice in the two years. While in the hospital had several severe hysterical attacks, strong convulsive action and attempts to beat her head on the floor, sometimes several in the day, and a peculiar cough resembling that observed in laryngismus stridulus. The uterus was found to be in a state of acute ante flexion. A stem pessary was employed. The attacks at once became less frequent. In a month she was made out-patient: fits ceased. Two months later pessary removed, complete cure, and return of menstruation.

<sup>1</sup> Retroflexion of uterus (third degree).

<sup>2</sup> 3rd edit., p. 410.

CASE III. *Acute anteversion of the uterus; no menstruation; severe epileptiform attacks.*—For fuller particulars of this case see third edition of this work. The patient was single, æt. 17; never menstruated. For ten weeks has had fits, as many sometimes as twenty in a day. In service since age of ten years. Pains in hypogastrium, and frequent micturition for four months. Uterus anteverted. Sound easily introduced. Cradle pessary introduced. A month later the fits had become reduced in frequency, and she left the hospital. Menstruation appeared about two months after commencement of treatment and was followed by a complete cessation of the attacks.

CASE IV. *Acute anteflexion of the uterus, probably of one year's duration; convulsive attacks occurring frequently during that time.*—The patient was married, thirty years of age, had one child four and a half years ago. Health tolerably good till one year ago. Six weeks' nursing a sick child appears to have made her ill. The illness began with an attack consisting of slight loss of consciousness for a moment, then convulsions. Since that time has had attacks—two or three a day as a rule; the attacks last a short time, are not accompanied with loss of consciousness as a rule, and during the last three months have become more intense; menstruation had also ceased for three months, but has just occurred again once. The uterus was found acutely anteflexed. A cradle pessary was applied: the sound used to straighten the uterus. The attacks became at once reduced in frequency and intensity. During the first four days had altogether eleven attacks; during the succeeding ten days only five attacks; altogether she was under observation for seven weeks: the attacks latterly only occurred once in two or three days, and were very slight, while menstruation had occurred a second time rather profusely.<sup>1</sup>

CASE V. *Retroflexion of the uterus; hysterical attacks following exertion.*—Mrs. —, æt. 19, married fourteen months. Has had no child. Suffers from hysterical attacks, and her medical attendant believed her to be affected with retroflexion of the uterus.

It appears that four years before marriage she had a severe attack of scarlet fever, which left her so weak that she did not walk for one year, and then began with crutches. Since recovering from this attack she has been liable to what are termed hysterical attacks, following any exertion.

Menstruation is profuse and too frequent. The uterus is soft to the touch, very distinctly retroflexed. A pessary was applied.

The patient completely recovered, and had a child two years afterwards.

CASE VI. *Acute anteflexion; severe hysterical attacks.*—Mrs. —, æt. 34. Has been married fifteen years; has had no children. Menstruation always painful. Has had bearing-down for years. Ten years ago had St. Vitus's dance, not severely; but has occasional symp-

<sup>1</sup> Fuller particulars of this case in *Lancet*, August 7, 1875.

toms on and off, such as nervousness for an hour or two when excited. Six months ago had been nursing, for five months severely, and began to feel excessive bearing-down and strangury, became insensible for a week, and urine had to be drawn artificially. Had also pain in abdomen and hypogastric region, the difficulty in passing water continuing. She had severe convulsions at intervals during the time. Ever since this time she has had severe attacks of what are termed 'strong hysterics' after any slight fatigue. Uterus in a state of acute ante flexion. A cradle pessary was applied. Relief. Later history not known.

CASE VII. *Retroflexion of the uterus; hysterical attacks*.—E. J., a cook, single, æt. 26. Three years ago was under treatment for uterine affection. Has suffered for some time now from hysterical attacks, which last for about twenty minutes, and during which she becomes unconscious. The last attack came on during the singing in church, and she had to be carried out.

Uterus retroflexed. A pessary applied. Cure.

CASE VIII. *Slight ante flexion of the uterus; attacks of convulsions*.—Mrs. —, æt. 33, had four children, the last born six years ago. Six months ago had a convulsive seizure, following a course of nursing and over-exertion. The convulsions produced a kind of opisthotonos. She was conscious throughout, but could not move for ten days. Since this attack has occasional twitchings. No sickness. Easily tires from short walks. Uterus a little ante flexed. Sound enters with difficulty. Treatment, rest. Result favourable.

CASE IX. *Acute ante flexion of the uterus; suppression of menstruation; severe hysterical attacks*.—Miss —, æt. 20. Has always been weak and delicate. Menstruation began at twelve.

Two years ago she bathed in the sea just before the time for the period, and it did not consequently occur. She became very ill, and menstruation did not occur for three months. Since that time she has been liable to severe hysterical attacks, and to frequent threatenings of attacks. There was a further catching of cold five months ago, and the menstruation has not occurred since, with one exception.

The uterus was found very low down in the pelvis and ante flexed. A cradle pessary was employed. The hysterical attacks ceased, but the patient remained for some time in a weak condition. Finally, restoration to health. The hysterical symptoms did not recur.

CASE X. *Retroflexion of the uterus; hysteria*.—Miss —, æt. 41. Had a fall from a horse twenty years ago, and has been ill ever since. Treated for hysteria for a long time. It was discovered, nine months ago, to be a case of retroflexion, by Mr. Palmer, of Nayland, Colchester, who has nearly succeeded in restoring the uterus to its proper place, and she is now much better.

CASE XI. *Acute ante flexion of the uterus; severe hystero-epileptiform attacks*.—Mrs. —, æt. 21. Married three years. Ill since six months after marriage. Is subject to severe hystero-epileptic attacks. These



chiefly occur after sitting upright, as at meals. They are very severe, and the general disturbance is very acute.

The uterus is in a state of acute ante flexion and much tilted forwards. There is very great tenderness of the epigastrium and of the back, particularly at three special spots.

The flexion and displacement were treated by the sound and a cradle pessary. The attacks were relieved at once, and have not returned since.

CASE XII. *Acute ante flexion of the uterus ; severe convulsive attacks.*—Miss —, æt. 38. Out of health one year. Had an attack of bronchitis, on recovering from which she had a succession of severe nervous attacks, on one occasion being for five or six hours unable to speak, or to move the body or limbs, but was all the time conscious. There were many other severe attacks. For three or four months could not sit up one hour, though she could walk a little. Has not improved the last three months. To quote the patient's own description: 'There is constant pain in the back, almost constant sickness or nausea, occasional violent retching brought on by walking or even talking. Any exertion of mind or body produces clenching of the hands and a horrid feeling all over the back and back of the head. Menstruation regular, but extremely painful, and inability to move at these times increased. Feels very often faint, and a sensation then begins in the brain. She feels that she cannot speak, and is very unlike herself. On recovering feels as if she had been some one else all the time, or as if she had two selves, one quiet and sane, the other idiotic.'

Severe ante flexion of the uterus. Treated by a cradle pessary. Complete cure.

CASE XIII. *Acute ante flexion of the uterus ; severe convulsive attacks just previous to menstrual periods.*—Miss —, æt. 28. Has suffered from severe convulsive attacks since menstruation commenced. These attacks appear generally just previous to menstruation. They have been considered due to disease of the brain.

The attacks are of the following kind: The eyes become fixed on the ceiling, the teeth clenched, the back arched and rigid, the limbs also contracted and set. There is incapability of speaking, but the patient knows what is going on. The skin is deadly cold. The attacks last from an hour to an hour and a half. The patient was found to be suffering from acute ante flexion of the uterus. She was treated for this by a cradle pessary and occasional use of the sound. After three months the attacks had become greatly lessened in frequency. Half a year elapsed before the patient was next seen. The attacks had disappeared. A slight sensation of faintness only was occasionally observed at times. A year later still free from attacks. The ante flexion of the uterus was difficult to cure in this case, but the final result was satisfactory.

CASE XIV. *Retroversion and slight flexion of the uterus ; convulsive attacks about menstrual periods.*—Miss —, æt. 29. Four years ago began to suffer from convulsive attacks, which always came on

about the second day of the menstrual period. She remains insensible about half an hour (once for two days) after the attack. Has had five attacks. Has had much exertion in lifting and nursing. Uterus markedly retroverted and a little flexed. Treated by pessary. Cure.

CASE XV. *Acute retroflexion of the uterus ; severe hysterical attacks.* Mrs. —, æt. 38. Has had no children. About one year ago began to have severe hysterical attacks, with screaming and much excitement. Occasionally every word excites the sensation of an attack coming on. Formerly could walk well. Walking power now very much more limited.

Uterus acutely retroflexed, extremely sensitive to the touch. Treated by the sound and by a Hodge pessary. One year afterwards she stated that she had had no more attacks, and was in all respects feeling quite well and strong.

CASE XVI. *Uterus anteverted ; hysterical attacks.*—Mrs. —, æt. 30. Four children. Hysterical attacks and pain after exertion. Uterus anteverted, wearing a Hodge pessary, the over-action of which has produced anteversion of the uterus, or exaggerated it.

CASE XVII. *Anteflexion of the uterus ; hysterical attacks.*—Mrs. —, æt. 24. Three children. Two years ago began to have hysterical attacks, with pains in the head, and dulness. Since last confinement, five months ago, the attacks are more frequent. The patient has a frequent choking sensation. She is obliged to stand a good deal.

Uterus low down, anteflexed ; fundus close to symphysis pubis.

Treated by a cradle pessary. Cure.

CASE XVIII. *Anteflexion of the uterus ; hysterical attacks and severe sickness.*—Miss —, æt. 33. Five years ago lifted a heavy weight, and fell ill in consequence. Two years ago began to suffer from sickness. The sickness has been almost incessant ever since. Dysmenorrhœa also of late. For the last four months has been subject to fits of insensibility. The head feels strange ; she lies down and knows no more for some time—once for as long as twenty-four hours. When she returns to herself has much aching of the jaws. Uterus very low down, large and anteflexed. There is great tenderness over right ovarian region. Very severe and troublesome sickness almost constantly present. Treated by a cradle pessary. Great improvement, sickness subsided, attacks ceased. Pessary removed one year and nine months later, when patient seemed well. Five months later return of symptoms and re-employment of cradle pessary.<sup>1</sup>

<sup>1</sup> The following case, related by Boivin and Duges (translation by Heming, p. 109), very probably deserves to be classified with those in the above series:—

*Anteflexion supposed to be congenital.*—M. A. B., æt. 18, of small stature, died after repeated attacks of epilepsy. Ex. slight inflammation of intestines. The uterus was so bent towards its middle, that the posterior surface of its body appeared in front resting upon the neck of the bladder, and the fundus uteri was turned towards the anterior paries of the vagina, although the os uteri had retained

The cases above related, coupled with others which I have seen, but of which I possess no sufficiently good records, have induced me very decidedly to come to the conclusion that it is the uterus which is the seat of the irritation, which issues in the hysterical attack. The manner in which the attacks originated, the circumstances attending the subsequent occurrence of them, the relief, and in many cases the instantaneous manner in which the attacks ceased when the uterus was straightened and put into its proper position in the pelvis,—these facts and observations, repeated over and over again, have forced this conclusion upon me.

The occurrence of hysterical paroxysms was, in the large majority of cases which I have witnessed and investigated, apparently brought on by some physical exertion. This is a most important circumstance. The importance of it arises from the following considerations: When the uterus is in a state of flexion, either forwards or backwards, the act of lifting, or stooping, or over-walking, or standing, has the effect of intensifying the flexion; the uterus is pushed lower in the pelvis, and its curvature becomes exaggerated. This is a fact abundantly borne out by clinical observation. The result of increase of the flexion of the uterus is to increase the congestion; there is in such cases congestion to begin with, but the physical exertion leads to its very considerable aggravation, and when the aggravation reaches a certain point the hysterical attack appears.

On the other hand, by taking measures such as are adapted to prevent the aggravation of an existing flexion—that is to say, by keeping the patient in a horizontal position—the attacks are not found to occur, or, at all events, become much diminished.

Observation shows that the dorsal position prevents hysterical attacks due to ante flexion, but that the prone position is most effective when the case is one of retro flexion. These facts are most interesting. Out of the eighteen cases related, twelve were cases of ante flexion, from which it appears that the most common cause of hysterical attacks is presence of ante flexion of the uterus. One of the principal reasons why the mechanism of the production of the hysterical paroxysm has so long escaped recognition is, I believe, the fact that ante flexion of the uterus has, up to quite a recent period, been hardly allowed a place in nosology. I cannot

its natural situation and form. If brought into its natural position it immediately returned to the former one. Tissue on section blackish and very dense. Cervix livid grey. Interior of cavity dusky black. Length on convex surface two and a half inches; on anterior surface fourteen lines.'



stay here to explain this latter circumstance; but I take the opportunity of saying that, having for many years closely observed and investigated the mechanical diseases of the uterus, I have long been impressed with the grave nature and frequency of the symptoms to which this variety of distortion and displacement of the uterus is capable of giving rise.

I may be permitted, in conclusion, to make a few remarks on the ovarian theory as to the origin of the attacks, which has of late been so warmly advocated by Professor Charcot.

It is well known to gynæcologists that the ovary is sometimes found to be prolapsed, and can be readily felt in the Douglas pouch. It is there subjected to great pressure and irritation, and much pain and suffering is found to be present in such cases. These cases would therefore be supposed to be of all others cases in which hysterical attacks should occur, supposing that the ovaries are the principal point of origin. I do not deny that such dislocation of the ovary may cause hysterical attacks; but I have, at all events, not seen attacks of hysteria in such cases of dislocated ovary, unless accompanied also by acute retroflexion of the uterus. Retroflexion and dislocation of the ovary are not seldom associated.

Further, in the cases of hysteria above related, where flexion of the uterus was undoubtedly present, the ovaries were not found to be particularly sensitive, nor was there evidence of ovarian disease.

The fact that pain is frequently felt in the ovarian region in cases of hysteria, on which much stress has been laid by those who adopt the ovarian theory, is explained by the flexion of the uterus. Having made many observations on this subject, I am able to state that pain in the ovarian region is a very common symptom in cases of uterine flexion. It appears to be due to the fact that the flexion is generally a little to one side, the uterus not being usually bent directly backwards or forwards, but most usually a little to one side or the other.

Two series of facts described by Professor Charcot are adduced by him to support the theory that the ovary is the *point de départ* of the paroxysm in hysteria and hystero-epilepsy.

In the first place, Charcot states that pressure over the lateral hypogastric region has the following effect: 'Pressure there produces not only pain, but a sensation accompanied by all or some of the phenomena of the aura hysterica. Thus, methodical compression of the ovary determines the production of the aura, or sometimes even a perfect hysterical seizure.'

In the next place, Charcot states that a more energetic compression is capable of stopping the development of the attack when beginning, or even of cutting it short when the evolution of the convulsive accidents is more or less advanced.

The method adopted by Professor Charcot to effect the more severe compression is as follows:—

‘The patient should be horizontal in dorsal decubitus on the floor, or a mattress. The physician then, kneeling on one knee, presses the closed hand, or fist, into that iliac fossa which he had previously learned to regard as the habitual seat of the ovarian pain. At first much force is required to overcome the abdominal muscles. Pressure then produces numerous and noisy attempts to swallow. Consciousness returns almost at the same time. Now the woman moans and weeps, says she feels relief, or that you are hurting her. By continuing the pressure two, three, or four minutes, you are almost certain to find all the phenomena of the seizure to disappear as if by magic. When the abdominal resistance is overcome, pressure by the two first fingers is sufficient.’<sup>1</sup>

It may be desirable to consider how far the results of Professor Charcot obtained by pressure, as above described, over the ovarian region, are antagonistic, or the reverse, to the uterine theory above formulated, as to the cause of the paroxysm in hysteria and hystero-epilepsy.

The pressure employed by Professor Charcot is a very forcible pressure made in the hypogastric lateral region, calculated, first of all, to abolish the resistance of the abdominal muscles—a resistance considerable in many cases; and, secondly, to produce a real compressing influence on the organs which lie in the pelvis. The incidence of this pressure, which is effected by the fist, or by an apparatus specially contrived for the purpose, is rather widely spread, and it is such that it must almost of necessity affect not only the ovary, but first the uterus, and secondly the ovary. Doubtless when the resistance of the abdominal muscles is overcome, the pressure can be more particularly pointed on, or directed towards, the ovary, or concentrated on this latter organ. But at the same time it is almost inevitable that the uterus should be greatly affected by this pressure, and must receive a considerable portion of it. Considering for a moment the operation of such pressure on the uterus, the effect might be different, according to the position of the uterus at the time. Thus, if the uterus were much anteverted, the result would, or might, be to push it still

<sup>1</sup> See New Syd. Soc. Trans. of Charcot's *Lectures*, p. 27.

lower in the pelvis, and to increase the anteversion; but the action of the pressure would be further to express the blood from the uterine vessels, and to diminish any congestion of the organ existing at the time. If the pressure were made directly behind the pubic bone, the effect might, on the other hand, be such as to push the uterus backwards, and, in the next place, to drive the blood out of its tissues. A further effect of the pressure would be, in any case, to diminish the flow of blood to both uterus and ovaries alike, by the general action of the compressing power on the blood-vessels of the pelvic organs.

So far as I am able to judge, therefore, it would appear that the operation termed ovarian compression is really entitled to be denominated 'uterine,' quite as much, perhaps even more, than it is to be described as ovarian compression.

But this is not all. Professor Charcot states that slight pressure of the kind above described often brings on pain and symptoms of the hysterical aura—that is to say, the attack is capable of being brought on by slight pressure and relieved by severe pressure. All this is quite in unison with the argument which I just advanced, for supposing a version or flexion to exist, the slight pressure above the pubes, such as Charcot describes, would undoubtedly at first intensify the displacement. The slight pressure would temporarily thus so act on the uterus as to induce the attack.

In conclusion, I would express my conviction that the escape from the indefiniteness of view, which up to the present time has characterised the various opinions entertained as to the nature of 'hysteria,' is to be found in the frank adoption of the term 'hysterical' in its most literal sense; and that in the future the uterus will be held to be in the main responsible for those various manifestations and disorders denominated 'hysterical.'

*General conclusions as to the interpretation of hysterical phenomena.*—The cases which have been described in the previous pages offer evidence as to the operation of certain conditions of the uterus as exciting causes of the attacks in which convulsive phenomena are witnessed. And it is reasonable to suppose that in the slighter forms of hysterical disorder the influence at work is of an analogous nature.

It is extremely probable that the predisposing condition is always a state of defective nutrition of the nerve centres, for the individuals affected for the most part present other strong evidence of general feebleness, weakness, and want of power. Moreover,



there is usually a history of previous inappetency, and such quantitative defects in the dietary as would be likely to give rise to a starved condition of the frame generally. Together with this weak condition of the nervous centres there is often a feeble condition of the uterus present (see chapter on 'Undue Softness of the Uterus').

As to the mechanism of the milder manifestations it may be reasonably assumed that when they result from mere emotional excitement the affection is a primary affection; probably an unduly weak and irritable state of the nerve centres. But when the manifestations occur as the result of over-exertion, it is more probable *à priori* that they are the result of a reflex action. This reflex action takes its departure, according to the results of my experience, most frequently in the uterus. How this occurs may be explained as follows:—

When the uterus is physically weak, its tissues are often found to be soft and unduly pliable, and under such circumstances a slight physical exertion is capable of producing an alteration in its shape. This alteration of shape is attended with compression of the nerves of the uterus. This compression of the uterine nerves is capable of exciting reflex manifestations.

Thus, in a weakly woman, lifting a weight, standing too long, or any kind of exertion capable of putting a physical strain on the too pliable uterus, may excite hysterical manifestations. In point of fact it can be shown that the more severe hysterical manifestations due to a reflex mechanism are usually associated with an habitually flexed state of the uterus. We are now, however, speaking of the cases which are of a more simple character; but careful inquiry into the facts of cases will show that the above explanation is at all events compatible with those facts.

The presence of an 'hysterical' tendency means, according to the explanations above given, that the individual is physically weak, but not necessarily fanciful. These physically weak individuals are also liable to suffer from various pains and inconveniences referable to the uterus; and it has come to pass that in very many instances these other sufferings have been regarded as imaginary or fanciful *because* they are observed in 'hysterical' patients. But with the foregoing explanation available, the reason for the association is obvious enough. In point of fact these sufferings, which are so frequently thought to be fanciful, are real, and the meaning of their presence is that the uterus is in a state of

irritation and that the basis of this suffering is a physically weak condition of that organ.

Dr. Gowers' remarks on the 'ovarian compression' so largely practised in Paris are interesting. Ovarian compression 'fails to produce a marked effect in patients in this country, although ovarian tenderness is by no means uncommon. In such patients evident distress, choking sensations, and even the feeling by which attacks are heralded, may be produced by compression of the tender ovary, but I have never known such pressure to produce an actual attack.'

Regarding the connection between disorders of the sexual organs and convulsive attacks, Dr. Gowers makes the following remarks: 'Retarded or absent menstruation coincided with the first fits in a large number of the cases which commenced in girls between fourteen and seventeen, but the difficulty in determining the exact causal relationship between the two conditions is very great. Epilepsy once set up in such cases, the subsequent establishment of regular menstruation appears to exercise very little influence upon the fits' (p. 31).

And later on, speaking of the treatment, the same writer says: 'Recorded cases, in which the attacks have ceased when a uterine displacement was rectified, have not been paralleled by any facts which have come under my personal observation' (p. 300).

Respecting the truth of the theory now put forward confirmatory evidence is by no means wanting. Niemeyer, whose facts are generally considered as reliable, and who was certainly not disposed to attach an undue importance to these special uterine disorders, says that flexions more than any other of the disorders of the uterus give rise to hysteria. This is an exceedingly valuable statement, coming as it does from a distinguished modern pathologist. It is, in fact, a piece of evidence from the opposite camp, so to speak, and is important as bearing out my view of the case. The further arguments I submit are as follows: In the first place, there is the *à priori* argument. It is reasonable to suppose that compression of the uterine tissues, involving as it must do compression of the nervous filaments, may produce such irritation as to give rise to convulsions. It does not, however, at all follow that such compression will always produce convulsions. It would be as reasonable to find fault with the theory that convulsions are sometimes due to the presence of worms in the intestinal canal,

because these entozoa do not invariably give rise to convulsions. No one, however, doubts the connection between these two events. It is therefore not a sufficient reply to this statement to say, that if this theory were true, convulsions would always occur when compression of the uterine tissues is produced. The clinical arguments in favour of this view seem to me to be overwhelming. I have seen a considerable number of cases in the course of the past few years where convulsions of the kind described have actually ceased when the flexed uterus was so treated as to diminish or remove the compression existing at the seat of the flexion. And in all such cases I have observed that this kind of treatment produced a very marked effect even when it did not succeed in at once removing the attacks. This is an important argument. Another is, that the position of the body, or any exertion which has a tendency to aggravate the flexion, invariably aggravates and intensifies the convulsions. I could relate many instances where this interesting fact was observed. Thus, in one case of severe retroflexion, giving rise to convulsions, the attacks instantly ceased when the patient was made to lie on her face, this improvement being in that case effected without any other mechanical treatment of the uterus whatever. In another case, that of the wife of an Indian officer, in whom the convulsive attacks were produced by ante flexion of the uterus, they invariably occurred when the patient was sitting upright at the dinner table, that being the only time of the day when they did occur. The sitting position increased the ante flexion, and thus gave rise to the convulsions. A further argument is the effect of measures having a more direct curative action upon the flexion, and which have been employed with the idea of restoring the uterus to its proper shape. I mean the employment of the sound and the use of pessaries in order to restore the uterus to its true natural shape. I now state that the effect of these measures has been, clinically, to give proofs, over and over again, of the validity of the position which has been taken up, inasmuch as the convulsions, or the tendency to convulsions, have always been influenced favourably in direct proportion to the degree in which the flexion has been favourably acted upon. Another argument which I have to submit is the result of very careful exploration of the uterus in many of these cases, an exploration made by the finger and the sound. It will be found in these cases that the introduction of the sound, if properly managed, gives no pain to the patient until it reaches the situation where the flexion exists. When the sound has been



introduced a distance of one inch into the cervical canal its point comes in contact with that part of the uterine wall which is the seat of the compression; and invariably it is found, under these circumstances, that the patient experiences very great pain when that part is touched by the point of the sound. After the point has passed through this strait, and when passed beyond the site of the flexion, there is no more pain felt by the patient. But the mere touch of the point of the sound on the uterus in this situation always give rise to extreme pain and evidence of extreme sensitiveness. It requires that the examination should be conducted with great care in order to give this result, because it generally happens in these cases that the uterus as a whole is also sensitive to the touch. But by carefully conducting the examination it is practicable to define those parts which are so very sensitive to the touch.

#### TREATMENT.

The indications for the treatment of hysteria are two-fold: *First*, to remove or ameliorate the susceptibility of the patient to impressions from without or from within, and, *secondly*, to remove the exciting cause, whatever that may be.

On the subject of the *general treatment* much has been already said in former pages as to the effects of a systematic attention to the nourishment and feeding of patients whose general condition is one of feebleness and impaired nutritional activity. The very great success which has attended the treatment of hysterical cases by what is now known as the 'Weir Mitchell system' has been described, and its *rationale* particularised in a former chapter (see page 97). The systematic feeding associated with baths, massage, electricity, etc., has been attended with the best effects in producing a change from excessive feebleness to a condition of vigour and general nutritional activity, and there can be no doubt that the treatment in question is based on sound physiological and therapeutical principles. The so-called 'hysterical' subject is frequently simply 'weak,' and will be improved by all measures having an invigorating tendency.

As preventive measures, fresh air, moderate exercise, nutritious food, occupation and exercise of the mind in some useful pursuit, are undoubtedly to be recommended. In regard to bodily exercise, caution must be exercised, for much mischief may result from

over-exertion in a weakly subject. The emotional faculties should remain in abeyance so far as is practicable.

Marriage is on the whole to be recommended, but marriage is liable to increase the malady unless pregnancy occurs. My experience is that the condition of the uterus, which produces hysteria, is not seldom the cause of sterility after marriage.

If the hysteria has nothing to do with the uterus and no uterine lesion is discoverable, general treatment only will be applicable.

But when the uterus is affected with a decided alteration of shape, general treatment, though not without its advantages, will very frequently be quite powerless in removing the liability to the disease. The means of remedying these alterations in the shape of the uterus which have been already described (see 'Treatment of Flexions') must then be put into requisition. The shape of the uterus must be restored, and the organ maintained in a state of rest. The treatment has yet to be tested by other observers, but what I have seen of it in my own practice enables me to affirm that when it is made impossible by mechanical or other treatment for the uterus to become further bent (a previous rectification of its shape having been properly carried out), the symptoms do not recur.

*Palliative measures.*—Distressing symptoms presented by hysterical patients, and for which relief is most urgently sought, are, flatulence, headache, and pain in the side. The flatulence is best treated by cordials; ginger, sal-volatile, and ether may be given for this purpose in combination. Relief in this way is of course only temporary, and the dyspepsia, on which the flatulence depends, must be treated by suitable measures. An assafoetida injection has been found to afford temporary relief in some cases. Opiate liniments are often serviceable; counter-irritation of the whole surface of the skin by use of flesh-brushes is very serviceable in the general treatment of hysterical patients.

In reference to headache, the same remarks as to the necessity for general treatment hold good. I have found both opiate and choloroform liniments of great service. Bark, in the form of the 'liquor cinchonæ,' is a valuable remedy in many cases where there is severe headache associated with anæmia. Cannabis indica, ether, valerian, and other antispasmodics, are often also necessary in these cases.

*Paroxysms of hysterical convulsions* must be guarded against by preventing the application of the ordinary exciting cause,

whatever that may be. For the relief of the paroxysm itself, a variety of methods have been recommended. Dashing of cold water in the face is one of the most efficacious, though, for a variety of reasons, it cannot always be adopted. Chloroform inhalation is very effective. Application of burnt feathers or other strongly smelling substances to the nostrils is often efficacious. Valerian, castoreum, assafoetida, ether, musk, camphor, are the drugs most commonly had recourse to, either in cases where the paroxysm is imminent, or, when it has ceased, with the view of preventing its recurrence. These remedies may be given singly, or two or more may be combined. Injections of cold water into the stomach were found very efficacious in arresting the paroxysm by Cruveilhier, and also by Dr. Ashwell. Injection of iced water into the rectum has been also recommended. Dr. Hare has introduced the plan of arresting the paroxysm by temporary suffocation of the patient. Pressure in the inguinal regions (ovarian compression), practised by Negrier, and more recently by Charcot, is a procedure which has been already discussed (see *ante*, p. 558).



## CHAPTER XXXIX.

HYSTERO-NEUROSES (*continued*).—MENTAL DISORDER DUE TO REFLEX UTERINE IRRITATION.—CEPHALALGIA.

Mental Disturbances sometimes produced by Uterine Irritation—Illustrative Cases.

CEPHALALGIA.—Occasional Severe Headache due to Disorders of the Uterus.

EXPERIENCE has shown that irritation starting from the uterus is capable of exciting disturbances in the mental condition of the patient. The irritation acts in a reflex manner upon the cerebrum, and gives rise to marked mental disorder in certain cases.

Dr. Engelmann,<sup>1</sup> in his essay on the hystero-neuroses, describes cases of this kind. He selects three—one of a series of cases related by Meyer: 1. A case of melancholia, with anteversion, uterine congestion, and erosions. 2. A case of hypochondria, delusions, masturbation, anteversion, chronic metritis. 3. Melancholic depression, with delusions, in a patient of 21, during her second childbed. [This last case, however, hardly belongs to the category now under consideration.] Engelmann selects certain of Dr. Fordyce Barker's cases: viz. two cases of insanity, the result of menorrhagia. Engelmann has observed 'displacement of the uterus, but not as a cause of insanity,' and reposition of the extremely retroverted and large organ was followed by immediate disappearance of the mental disturbance and very remarkable relief.

Dr. Percy Boulton<sup>2</sup> has written on the same subject, and points out that reflex disorders of uterine origin frequently occur and are not recognised—*e.g.* periodic headaches, neuralgia, depression of spirits, epilepsy, melancholia.

There are here two factors to be considered—the cerebrum and the uterus. The condition of the cerebrum is no doubt an abnormal one, or the uterine irritation would not have the effect of so readily disturbing its functions. That condition of the cerebrum is in all probability essentially one of debility. Speak-

<sup>1</sup> *Loc. cit.*

<sup>2</sup> *Obst. Journ.* No. 23, p. 697.

ing of the predisposing causes of mental disease, Dr. James Adam<sup>1</sup> says it will very often be found that 'exhaustion,' in one or other of its many forms, lies at the root of the evil, and prepares the way for its onset—exhaustion induced by an infinite variety of means, but having as its climax impaired nutrition and exhaustion of the cerebral centre itself; which, being thus imperfectly nourished and exhausted, produces none of the ordinary ideas or modes of thinking incidental to health.

It is possible that cases of reflex irritation on the side of the uterus producing mental disturbance occur in the class of cases above described by Dr. Adam. The instances which have come under my notice have been observed in cases where exhausting ideas or influences have been at work.

I subjoin particulars of some cases illustrative of the foregoing remarks, which have fallen under my own notice:—

CASE I. *Melancholia due to anteversion of the uterus.*—Mrs. —, æt. 30. Married nine years. Had first two children, then a miscarriage; and after three years' interval, another child. Six weeks after birth of this last child, three and a half years ago, felt hysterical after breakfast, and was very weak and ill. Eight months afterwards, a miscarriage. She got about and excited herself soon afterwards, and became ill. An attack of rheumatism supervened. She had a sensation that 'she must go out of her mind.' This continued till next pregnancy. Her last child was born one and a quarter year ago. Since that occurrence, she has been liable to sudden attacks of a peculiar mental feeling. She has at these times a dread lest she should say wrong things. She has pain in the head for weeks together, feels excited and weak. She is suffering from anteversion of the uterus, which her medical attendant has detected, and he sends her to me, in order to ascertain if the uterine condition has anything to do with the head symptoms. On examination, decided anteversion found to exist. Treated by a cradle pessary. Perfect cure of the head symptoms. Subsequent pregnancy, and delivery at full time.

CASE II. *Melancholia; menorrhagia; retroflexion of the uterus.*—Mrs. —, æt. 30. Married five years. Has been under the care of a distinguished physician, Dr. Thomas, in New York. Has had two children; last nearly two years ago. After the first labour, the patient overwalked herself and became ill; the periods being very profuse. One month after the second labour she felt that the nervous system was out of order: she heard noises in the head, could not work, or read, or write, or attend to affairs. Menstruation became very profuse; she was in constant dread of an 'attack' of some kind. Has been wearing a retroflexion pessary since that time, and is now better.

<sup>1</sup> Report of Crichton Royal Institution, Dumfries, for 1880. p. 14

CASE III. *Mental excitement at menstrual epochs; anteversion.*—Miss —, æt. 34. Liable to attacks of mental excitement, which occur when menstruation is delayed or does not appear. The irregularity of menstruation, and the liability to mental excitement date from a period fifteen years ago; and the cause of the illness seems to have been a long ride on horseback. The uterus is soft, and anteflexed to a slight extent.

CASE IV. *Melancholia; anteversion of the uterus.*—Mrs. —, æt. 37. Has had nine labours, six of which were premature. Suffers from a constant feeling of melancholy, distressing both to herself and to her friends. The uterus is large and anteflexed. Treated by a cradle pessary. Removal of the melancholia.

CASE V. *Mental excitement; extreme exhaustion; anteflexion of the uterus.*—Mrs. —, æt. 20. Has had two children. Suffered from great weakness, and inability to take food. Great mental excitement. Anteflexion of the uterus. The case was one of severe chronic starvation. Very great patience and care were required in this case, but a complete cure from a very alarming condition was finally obtained.

CASE VI. *Mental disturbance; retroflexion of the uterus.*—Miss —, æt. 29. Was unable to walk well between the ages of 13 and 18. Had to lift weights and exert herself a good deal. Suffers from low spirits and depression, and has periods of exacerbatation of this feeling, during which she writes letters of an abusive character to her relations. The uterus is in a state of acute retroflexion, and the history shows that the displacement has existed for some years. She is now unable to walk easily. A complete cure of all the symptoms followed; treatment by means of a Hodge pessary.

CASE VII. *Derangement of thoughts; retroflexion of the uterus.*—Mrs. —, æt. 42. Has had one child. Has pain in walking, and 'her thoughts get deranged' by walking; so much so that it is a serious trouble to her. Uterus retroflexed, low down, rather small in size.

CASE VIII. *Melancholia; anteflexion of the uterus.*—Miss —, æt. 38. For last year or more felt very low and desponding, and as if she should go out of her mind. The head is painful. Five years ago, had for a considerable time much exertion. Uterus low down, anteflexed.

CASE IX. *Great mental depression; exhaustion; anteversion of the uterus.*—Mrs. —, æt. 35. Two children. Suffered great fatigue some months ago, nursing a sick child. Since that time very ill. Extreme depression of spirits, worse in the evening. Walking gives great pain in the back. Uterus soft, swollen, much anteflexed. Considerable relief followed treatment, but the soft condition of the uterus was only remedied after a considerable interval of time.



## CEPHALALGIA RESULTING FROM UTERINE IRRITATION.

Very intense cephalalgia is occasionally observed in connection with long-standing flexion of the uterus. This symptom is not very common, at all events in this degree of intensity; but the circumstances of certain cases which have come under my notice were such as to show in a very positive manner that the connection between the symptom in question and the cause assigned was really one of cause and effect.

The cephalalgia may be so intense that the sufferer is sometimes confined to a darkened room for days together, unable to bear light, and hardly tolerating being even spoken to. And I have known a case (one of chronic severe retroflexion) in which this state of things had reached such an extent that the patient hardly ever left her room at all.

Another case may be mentioned—that of a young lady who was liable to exceedingly severe cephalalgia, lasting sometimes three days at once. She was affected with ante flexion of the uterus, the uterus in a state of malnutrition, and very soft to the touch. She entirely lost the headache while under treatment for nearly two years by a uterine stem. The symptom returned after the removal of the stem, and after some months' trial by other measures it was found necessary to adopt the stem treatment a second time in order to give her relief.

Severe cephalalgia is sometimes observed in cases of fibroid tumour of the uterus, and I have observed cases in which the symptom in question was most distressing, and very intractable to treatment of any kind. But it does not appear that cephalalgia is more liable to occur in cases where the fibroid tumour is of large size; on the contrary, in the cases where the symptom has been most intense, the tumour was of inconsiderable magnitude.

## CHAPTER XL.

## PERI-UTERINE HÆMATOCELE.

Pathology of the Subject—Positions in which the Hæmorrhage occurs, and Symptoms attending its Occurrence—Intra-peritoneal, Extra-peritoneal, Causes of Peri-uterine Hæmatocele enumerated—Results.

DIAGNOSIS.

TREATMENT.—Means of arresting the Menorrhagia—Treatment of Pain, Collapse, &c.—Question of Puneture.

THE terms ‘pelvic hæmatocele,’ ‘peri-uterine hæmatocele,’ ‘retro-uterine hæmatocele,’ ‘pelvic hæmatoma,’ have been used to designate an effusion of blood in the neighbourhood of the uterus, giving rise to formation of a tumour. The occurrence of hæmorrhage in and amongst the pelvic viscera in women, although spoken of by several of the older authors, has only within the last thirty years received that amount of attention which its importance deserves. To Bernutz,<sup>1</sup> Nélaton, and Voisin of Paris, the profession is indebted for first indicating and explaining the nature, course, and symptoms of this affection. In this country, Dr. Tilt was the first to draw attention to the matter; Dr. West has written an admirable account of it in his work on ‘Diseases of Women;’ Sir J. Y. Simpson described it, in his ordinary felicitous manner, in his ‘Clinical Lectures.’ The works of Voisin<sup>2</sup> and Bernutz,<sup>3</sup> an admirable essay on the subject by Dr. M’Clintock,<sup>4</sup> the valuable observations of Dr. Madge,<sup>5</sup> Dr. Matthews Duncan,<sup>6</sup> and a very complete and exhaustive essay by Dr. Tuckwell,<sup>7</sup> comprising an analysis of ninety-eight published cases, may be referred to for information on this interesting subject.

<sup>1</sup> See *Arch. Gén. de Méd.* 1848.

<sup>2</sup> *De l’Hématocèle rétro-utérine, et des Epanchements sanguins non-enkystés de la Cavité Péritonéale du Petit Bassin.* Paris, 1860.

<sup>3</sup> *Clinique Médicale sur les Maladies des Femmes*, vol. i. 1860. Translated by Dr. Meadows for New Syd. Soc. 1866–7.

<sup>4</sup> *Clinical Memoirs on Diseases of Women.* Dublin, 1863.

<sup>5</sup> *Obst. Trans.* vol. iii.

<sup>6</sup> *Edin. Med. Journ.* Nov. 1862.

<sup>7</sup> *On Effusions of Blood in the Neighbourhood of the Uterus.* Oxford, 1864.

Dr. Savage, Dr. Barnes, Dr. Meadows, Dr. Pallen may be mentioned among those who have more recently published valuable observations thereon. The views at first entertained and expressed respecting this newly-discovered pathological condition were somewhat opposed to each other, and there is still difference of opinion as to the nature, seat, and mode of origin of the hæmorrhage, although the difference is really less than it has been represented to be.

Bernutz, whose claims to be considered as the first modern observer and expounder of this pathological condition stand before all others, rightly insisted on the mischief which has arisen from treating the effusion, clot, or tumour as a sort of entity, and of the confusion which has arisen from speaking of pelvic hæmatocele or uterine hæmatocele as a disease *per se*; whereas it is really but a symptom, a consequence, an effect, or an accident, as the case may be, of exceedingly varying conditions. The term 'hæmatocele' must be understood to be a convenient term, indicating simply presence of effused blood; and if we use the double term 'peri-uterine hæmatocele,' which is on the whole a convenient one, it must be understood to imply effusion of blood in the neighbourhood of the uterus. It will so be used in this place, and without restriction of any kind as to the precise seat of the effusion.

The circumstances leading to the pouring out of blood in the neighbourhood of the uterus will be presently mentioned; but, in the first place, it will be advisable to point out the anatomical positions in which hæmorrhage is liable to occur.

#### INTRA-PERITONEAL HÆMORRHAGE.

Hæmorrhage may take place into the peritoneal cavity, the blood collecting in the pelvis, and lying on and between the pelvic viscera; and the blood may come from some vessel in the pelvis itself, or from a vessel situated in the abdominal cavity. The blood collects in the pelvic cavity, which it fills more or less completely, according to the quantity poured out. If the effusion proceed rapidly, it may kill the patient before coagulation of the blood has taken place. If the effusion take place slowly, the blood effused generally coagulates, and the coagulum becomes limited to a certain situation by inflammatory products, or by the free border of the coagulum only. In this case it is spoken of as encysted; but, under some circumstances, no such limitation of



the blood occurs. It will be obvious that, when the blood has coagulated, the coagulum will form a tumour having certain physical characters, and which, if the coagulum be in the pelvic cavity, may be felt through the vaginal walls on digital examination. If the examination be made early, fluctuation may be perceivable, but it is often difficult to make out fluctuation satisfactorily. If the examination be made soon after the coagulation has occurred, the tumour will be soft and ill-defined, and the more so as it will be probably at this time surrounded by serum not yet absorbed. If the examination be made later, the tumour will be harder and more resistant. Later still, it will be found either to have become reduced in size, or to have undergone a softening process or liquefaction. The blood drawn off by operation has a syrupy consistence and a peculiar odour, compared by Dr. Matthews Duncan to that of faded and slightly decomposing flowers. It is obvious that the physical aspects of the tumour, as felt through the vaginal wall, will vary according to the amount of blood effused and the quickness with which this occurs. A large and sudden hæmorrhage would leave behind it a clot filling the whole pelvic cavity, dipping down behind and at the sides of the uterus, as far as the peritoneum extends. The uterus would in such a case be felt to be embedded in a mass of semi-solid substance. On the other hand, a small hæmorrhage would give rise to a coagulum which might be felt only in one part of the pelvis—*e.g.* behind the uterus, in the Douglas fossa ('retro-uterine hæmatocele'). The effect produced on the patient by hæmorrhage into the peritoneal cavity appears to vary very considerably. In one case—and this is perhaps the rule—it sets up violent inflammatory action; in another, the presence of the blood is better tolerated. The effect on the patient *quoad* the loss of blood necessarily varies according to the amount lost and the ability of the patient at that particular time to bear losses of blood of any kind. It is almost unnecessary to point out that when a large coagulum occupies the pelvic cavity it gives rise to the 'pressure' signs observed in the case of other pelvic tumours, such as difficult defæcation, difficult micturition, a sense of fulness, pains in the lower extremities, etc.

It may or may not be the case, as Dr. Barnes contends, that very slight hæmorrhages into the pelvic peritoneal cavity occur frequently, and are clinically unrecognised. When, however, the hæmorrhage is considerable, the symptoms produced are of a peculiar kind, most alarming, most intense in character. The

symptoms are those of hæmorrhage and of peritonitis combined. Thus the patient becomes deadly faint, and at the same time complains of an agonising pain in the lower part of the abdomen. The fainting is more or less continuous, but it is greatly more intense at intervals. And so with the pain, this being generally continuous, but liable to exacerbation to an extreme degree at times. It is eharacteristic of the attaek that it begins suddenly, and most frequently it happens that the attaek is eoincident with a menstrual period. There may be, adopting Dr. M'Clintoek's arrangement of the symptomatology, three modes of invasion: (1) The sudden and aeute form; (2) A form less severe and overwhelming in its effects, life not being so evidently threatened; (3) A sort of chronic form, the symptoms being developed gradually or in suecession.

#### EXTRA-PERITONEAL PELVIC HÆMORRHAGE.

The term 'thrombus' has for some time been used to designate a blood coagulum in the cellular tissue of the labia, or near the external outlet of the organs of generation; and the term is

FIG. 162.<sup>1</sup>



obviously quite as applicable to the coagulum resulting from hæmorrhages taking place higher up—that is to say, in the cellular tissue near the uterus, in the broad ligaments, etc. Whereas, however, the thrombus of the external generative organs has for a long time been well known, it is not so with the thrombi of the

<sup>1</sup> Fig. 162 gives an outline of the tumour in a case (P. H.) in University College Hospital, where the hæmorrhagic effusion was apparently extra-peritoneal.

internal generative organs. It is now known that an effusion of blood near the uterus in the situations above indicated is not uncommon. By some authors the effusion (or its coagulum) is spoken of as a 'thrombus'; by others it is considered as a 'peri-uterine hæmatocele.' Thus Bernutz only admits intra-peritoneal hæmorrhages as causes of hæmatocele, and considers extra-peritoneal hæmorrhages as instances of thrombus. This author, it should at the same time be remarked, believes that the extra-peritoneal form of hæmorrhage is comparatively rare. It is more convenient, however, to discard this word 'thrombus,' and, whether we agree with Bernutz or not as to the rarity of extra-peritoneal hæmorrhage, to apply the term 'peri-uterine hæmatocele' to

FIG. 163.<sup>1</sup>

hæmorrhages having this anatomical position. If the nosology of the subject were to be considered *de novo*, there would be much to be said in favour of a different nomenclature.

The seat of the extra-peritoneal hæmorrhage now under consideration is the connective tissue around the uterus and ovaries and pelvic viscera generally. The position and shape of the tumour resulting from coagulation of blood so effused necessarily varies according to the precise situation of the bleeding vessel. Thus if the bleeding vessel be in front of the uterus, the tumour

<sup>1</sup> Fig. 163 gives a lateral view of the position of the tumour in a case observed in University College Hospital. The effusion was of very considerable extent. The outline of the tumour is strictly correct, but it is not certain whether the blood was intra- or extra-peritoneal. It was diagnosticated at the time as extra-peritoneal.



will likewise be in front ; and if the bleeding continue, the coagulum may extend from this point laterally on each side. If the bleeding vessel be behind the uterus, the coagulum will be there evident. The pelvic viscera become dislocated by the tumour resulting from the coagulation, to a degree necessarily dependent on the extent of the hæmorrhage. The tumour may extend from the pelvis high up into the abdomen. The physical character of the tumour, as regards hardness, softness, etc., is subject to variations of the same kind as detailed in the case of extra-peritoneal hæmorrhage. In fact, so nearly do the physical characters presented by the tumour in extra- and intra-peritoneal hæmorrhage agree, that it is hardly possible during life to distinguish them. The tumour in both cases may rise high above the pelvis into the abdomen ; in the extra-peritoneal form it may be extremely large. The symptoms do not, as far as can be ascertained, differ in the two cases ; and that this is true may be judged of by the fact that it is disputed whether in the majority of cases the hæmorrhage is intra- or extra-peritoneal. In the extra-peritoneal hæmatocele the tumour may reach lower down in the pelvis ; an hæmatocele tumour found extending upwards from the vulva into the pelvis would almost certainly be extra-peritoneal ;<sup>1</sup> the reflexions of the peritoneum would prevent such a descent of the tumour in the intra-peritoneal form. With this exception, there appears to be hardly anything in the physical characters of the tumours in the two cases to distinguish them. The changes which are observed in the coagulum formed do not materially differ, whether the hæmorrhage be intra- or extra-peritoneal. Absorption, softening, abscess—these are effects which may equally result. A tarry, syrupy condition of the contents is generally observed when the blood is not soon absorbed ; the blood corpuscles become shrivelled and contorted, mixed up with pus cells, crystals, patches of pigment, etc. It not unfrequently happens that the tumour, at first small, becomes enlarged at the next menstrual period, from a recurrence of hæmorrhage. Meanwhile, inflammatory action goes on, and during the progress of the combined and simultaneous effusion and inflammation the tumour increases.

<sup>1</sup> It is, however, important to recollect, as Dr. Phillips has pointed out, that the retro-uterine pouch descends very low in certain cases, so far, indeed, as to allow an effusion of blood within it to approach more closely than would have been supposed possible to the vulvar aperture. See *Obst. Trans.* vol. xiii. p. 179. Mr. Spencer Wells also considers that the retro-uterine pouch extends lower than has been generally supposed. The life-size drawings in this edition are altered, so as to represent this revised view of the subject.

We may now pass on to the consideration of the

#### CAUSES OF PERI-UTERINE HÆMATOCELE.

Under this head will be included all cases in which an effusion of blood takes place in the neighbourhood of the uterus so as to constitute a tumour perceivable through the vaginal walls, whether intra- or extra-peritoneal.

*Rupture of some one of the vessels in the uterine or ovarian plexus.*—It has been already (see ‘Phenomena of Menstruation,’ p. 12) pointed out that the stratum of blood-vessels forming a thick network immediately external to the uterus undergo, under various circumstances, a kind of erection, in process of which they become greatly distended and enlarged, and that this erection occurs, in all probability, during menstruation, during intercourse, and under other circumstances. Lying beneath the ovary, in the folds of the broad ligament, there is also a rich plexus of vessels—the pampiniform plexus, together with a mass of tortuous vessels now known as the bulb of the ovary; all these vessels are also susceptible of great enlargement. The functional activity of the uterus and ovaries is thus connected with a considerable engorgement and distension of the plexuses of vessels now referred to. The tissues of the uterus and of the ovaries are doubtless congested at the same time; but it is evident that when blood is determined to the internal generative organs, the greater part of it goes to distend the very large and numerous vessels in the uterine and the pampiniform plexuses and the ovarian bulb respectively.

Dr. Savage<sup>1</sup> points out the particularly free communication which subsists between the perinæal and pelvic venous systems, and that these veins are unprovided with valves. The plexus of veins round the uterus, round the vaginal canal, round the urethra, and round the entrance of the vagina, enjoy free communication one with the other. Dr. Savage points out also the valuable obvious inferences derivable from these considerations, in reference to the etiology and progress of hæmatoceles at the pudendal region. The enormous hæmorrhage sometimes observed in cases of rupture of vaginal varices, etc., is thus intelligibly explained. The number and size of the veins constituting the plexuses of the female generative organs predispose to the occurrence of hæmatoceles.

<sup>1</sup> Plate IV. *loc. cit.*

The foregoing facts have a very important bearing on the present question; they afford us the means of explaining satisfactorily why it is that hæmorrhage is liable to occur in the connective tissue around the uterus, and in the folds of the broad ligament. The clinical facts amply bear out the conclusions deducible from physiological considerations. Rupture of some one of these vessels may be produced by violent or immoderate sexual intercourse, by undue bodily exertion of any kind during menstruation, and probably under other circumstances also. When a vessel has given way, the effusion of blood may be trifling or considerable, according to circumstances. In some cases, the first hæmorrhage is slight, but under reapplication of the exciting cause it recurs, and finally a tumour of considerable size is formed. The seat of the ruptured vessel determines the position of the tumour. When the uterine plexus is implicated, the hæmorrhage is probably almost always extra-peritoneal; but if the rupture affect a vessel in the pampiniform plexus or in the ovarian bulb, the hæmorrhage may readily occur into the peritoneal cavity, although more generally it probably occurs within the folds of the broad ligament, and is extra-peritoneal. The intra-peritoneal cases are most likely to prove fatal, apparently because there is less limit to the amount of hæmorrhage. A 'varicose' condition of the vessels in the pampiniform plexus has been noted in some cases where rupture into the peritoneal cavity has occurred; and it is rational to infer, in many cases, the existence of a chronic varicose condition of the uterine and ovarian plexus of veins.

It is my impression that, in by far the majority of cases, the source of the hæmorrhage giving rise to the tumours classed under the term 'peri-uterine hæmatocele,' is that which has been now indicated. On this point, however, there is difference of opinion. In most cases of peri-uterine hæmatocele, the patients recover, and the anatomical evidence is wanting. Dr. Matthews Duncan<sup>1</sup> has well argued the question from this point of view. His experience has convinced him that the extra-peritoneal form of hæmorrhage is probably a common form of the disease, the clinical facts which have come under his observation having been opposed to the conclusion that an intra-peritoneal seat of the effusion was possible in certain of the cases related. Dr. Duncan admits, in common with other recent authorities, that the effusion is intra-peritoneal in many cases. From Dr. Tuckwell's analysis of published cases it appears that the effusion was intra-peritoneal in

<sup>1</sup> 'On Uterine Hæmatocele,' *Ed. Med. Journ.* Nov. 1862.



thirty-eight out of forty-one cases, where a *post-mortem* examination was made; there can be little doubt, in fact, that in the fatal cases the effusion is far more frequently intra-peritoneal; but this does not of course imply an absolute numerical preponderancy for the intra-peritoneal cases.

Dr. Savage,<sup>1</sup> to whose careful and beautifully illustrated work on the female generative organs the profession is much indebted, observes: 'Viewing the fixed relations of the pelvic peritoneum, which so far as is known are disturbed only through the slow disintegrating process attending the formation of matter, a subperitoneal hæmatoma of large size would appear an impossibility.' But it appears to me that the facts known to us in relation to the rapidly occurring, very considerable infiltrations, which are witnessed in the first stage of certain cases of pelvic cellulitis, before there has been any change of a disintegrating character, sufficiently show that these pelvic peritoneal structures do not offer material obstruction to the occurrence of large effusions beneath them. The non-fatal tendency of the extra-peritoneal hæmorrhages put it out of our power to adduce *post-mortem* data, comparable in number to the other class of cases when the hæmorrhage is undoubtedly intra-peritoneal.

Lastly, clinical facts show that a tumour originally seated in the broad ligament or elsewhere may burst into the peritoneum, and secondary hæmorrhage of very serious import may thus occur.

*Apoplexy and rupture of the ovary.*—Under this head may be included some few cases of peri-uterine hæmatocele. Collections of blood may be formed in the substance of the ovary, probably seated, as a rule, in an enlarged Graafian follicle, and constituting a sort of hæmatic cyst. This cyst may become ruptured, and blood extravasated into the peritoneal cavity. The formation of these hæmatic cysts in the first instance is involved in obscurity, but the explanation of their formation is probably the following: A Graafian follicle does not burst, as it should do, into the Fallopian tube; hæmorrhage takes place within it; it enlarges from continuance of the bleeding, and rupture occurs. I have occasionally found Graafian follicles pathologically increased in size, and containing very large clots. In certain blood diseases, hæmatic cysts of the ovary thus formed may probably attain a considerable size.

*Hæmorrhage during menstruation from the Graafian follicle*

<sup>1</sup> *Op. cit.* Plate vi.

*into the peritoneal cavity.*—This class of cases is one of great interest. Normally, a certain amount of hæmorrhage—the ‘menstruation of the follicle,’ as Dr. Tyler Smith has termed it—occurs before the dehiscence takes place. The transfer of the ovule from the cavity of the follicle to the canal of the Fallopian tube is attended probably with discharge also of some of the blood from the follicle into the tube. After dehiscence has occurred we find a coagulum of blood in the ruptured Graafian follicle—a coagulum ordinarily the size of a nut. Now it is evident that a derangement or disturbance of this physiological process may give rise to hæmorrhage into the peritoneal cavity. If the tube be not accurately applied to the follicle, the blood and ovule together may escape into the abdominal cavity—when the ovule has been fecundated such an accident may result, as the occurrence of cases of extra-uterine pregnancy proves—and if blood continue to be poured out from the interior of the follicle, the blood must either distend the follicle itself or escape into the peritoneal cavity. We have no means of knowing what is the normal amount of secretion of blood from the interior of the follicle. It has been ordinarily assumed that the quantity is trifling. There is, however, no proof of this; and indeed there are very good reasons for believing, with Gallard, that ordinarily a not inconsiderable portion of the menstrual discharge itself is derived from the follicle,<sup>1</sup> which latter, as is rendered probable from the researches of Rouget, remains closely grasped by the fimbriæ during the whole period of menstruation. If this latter opinion be correct, it will be evident that, if from any accident the normal path for the follicular hæmorrhage—that is, the Fallopian tube—be not available, intra-peritoneal hæmorrhage will result. If the condition of the blood be such as to favour hæmorrhage—as in fevers, anæmia, chlorosis, purpura, etc.—the effects of such an accident are intensified.

The peri-uterine hæmatocele due to this case would be intra-peritoneal. The formation of an hæmatic ovarian cyst might precede the abdominal hæmorrhage.

*Hæmorrhage from the uterus and Fallopian tubes into the peritoneal cavity.*—When the menstrual product is prevented escaping by the normal outlet, by congenital absence of such outlet, or by acquired stricture or closure of the same, reflux of the blood may occur through the Fallopian tubes into the peritoneal cavity, and formation of a peri-uterine hæmatocele. This

<sup>1</sup> See a memoir by Gallard, *Arch. Gén. de Méd.* Oct., Nov., and Dec. 1860.

is a class of cases in illustration of which very considerable labour has been bestowed by Bernutz, in the work previously alluded to.

Whatever may lead to menstrual retention may end in pelvic hæmorrhage. In the congenital cases of this kind the menstrual retention is associated with atresia of the cervix uteri, with absence of the vagina, or with imperforate hymen. In women who have menstruated, menstrual retention may occur from chronic inflammation of the cervix uteri closing the os uteri, or materially narrowing it; from traumatic influences during parturition, or otherwise; from cancer, etc. And there may be menstrual retention in cases where a slight menstrual discharge is apparently going on; the secretion of blood in the uterus may be so great that the os uteri is too small to allow of its escape. Hæmorrhage into the peritoneal cavity from the uterus and Fallopian tubes, one or both, may thus arise, either in connection with profuse menstruation or after parturition, or after abortion.

More commonly the peri-uterine hæmatocele originates at a menstrual period, the hæmorrhage being preceded by suppression or by profuse menstruation; it has almost always been noted that menstruation was previously irregular. There may or there may not be, concurrently with the internal hæmorrhage, an external one.

*Rupture of the fœtus-containing cyst in extra-uterine pregnancy.*—The symptoms produced by the hæmorrhage which occurs under these circumstances are generally very severe. The blood is effused into the peritoneal cavity, often in great quantity.

The physical characters of the tumour produced by the effused blood resemble those observed in other cases. Frequently death occurs before the tumour has become developed and distinct. This rupture is most liable to occur when the fœtus is contained in the Fallopian tubes, and most frequently the accident happens between the second and fourth month under such circumstances.

*Rupture of cyst of the broad ligament*, as in a case recorded by Dr. M. A. Pallen.<sup>1</sup>

*Rupture of the gravid uterus itself* is one of the causes of intra-peritoneal hæmorrhage, though such an accident properly belongs to obstetrics proper. The blood found in the peritoneum

<sup>1</sup> *Amer. Journ. of Obst.* vol. ix. p. 69.



would naturally collect in the retro-uterine pouch under such circumstances.

*Rupture of hæmorrhoidal veins.*—Sir J. Y. Simpson mentions a case<sup>1</sup> in which a considerable tumour situated between the vagina and rectum consisted of a coagulum—the result of hæmorrhage from one of the hæmorrhoidal vessels.

*Hæmorrhage from vessels of the peritoneum and other sources.*—Bernutz<sup>2</sup> describes a form of hæmatocele resulting from hæmorrhagic pelvi-peritonitis. Ferber,<sup>3</sup> Virchow, Rockwitz, and Schroeder<sup>4</sup> have, in reference to the general etiology of hæmatocele, drawn attention to the possibility of hæmorrhage occurring from the capillaries formed in the false membranes covering the pelvic viscera, the false membranes being the result of local inflammatory action. This hæmorrhage is analogous to that observed by Virchow in hæmatoma of the dura mater, in which case the blood is effused between successive layers of inflammatory membrane.

Here also may be mentioned the rare accident, *bursting of an aneurism* into the abdomen, the coagulum from which might be so situated as to give the physical characters of a peri-uterine hæmatocele.

Also, cases of the kind to which Dr. M'Clintock has drawn attention, and which, so far as at present known, are very rare, viz. the effusion of blood into the tissue of the uterus itself: the cervix uteri is the part affected. These cases occur only during, or immediately after, parturition.

*Constitutional causes of peri-uterine hæmatocele.*—Any condition of the system at large favouring the production of hæmorrhage, may alone, or concurrently with some one of the causes already mentioned, give rise to peri-uterine hæmorrhage. The presence of fevers, small-pox, etc., has in some recorded cases been associated with peri-uterine hæmatocele, the menstrual function becoming thus disturbed or disarranged in its performance. A watery condition of the blood, such as is present in anæmic individuals, chlorosis, purpura, or other blood disorders which may be considered as predisposing to the occurrence of hæmorrhage at a menstrual period, may, in the manner previously pointed out, be the cause of the peri-uterine hæmorrhage. Trousseau termed cases of this kind 'cachectic' hæmatoceles.

<sup>1</sup> 'On Pelvic Hæmatoma,' *Med. Times and Gaz.* vol. ii. 1859.

<sup>2</sup> *Op. cit.*

<sup>3</sup> *Arch. f. Heilk.* 1862, No. 5, p. 431.

<sup>4</sup> *New Syd. Soc. Year Book*, 1869–70, p. 378.

*Traumatic causes.*—It appears probable that in not a few cases peri-uterine hæmatocele is produced by actual laceration or stretching of vessels in the pelvis, the result of displacement of the uterus. That vessels do become lacerated is certain; that there are various diseases of the vessels in question which predispose to such rupture is well known. Although in some few cases the occurrence of the escape of the blood may occur without special exciting cause, it is yet the fact that in most cases unusual physical exertion of some kind has preceded the event, such exertion in fact as would be likely to originate or intensify a displacement of the uterus. It is a clinical feature of such cases also that the accident is more liable to occur at the time of the menstrual period, or just before it or immediately after it.

*Hæmatocele produced by anteversion of the uterus.*—Not long since a case was under my observation in University College Hospital which suggested the above generalisation. The patient was a cook having much standing and lifting to do. She became affected with peri-uterine hæmatocele. When the effusion had much diminished in size she was allowed to get up, but was again seized with pain, and it was then found that the uterus had become anteflexed, apparently as the result of the movement, and that there was a recurrence of the effusion of blood. After an interval of rest she was again allowed to get up, whereupon the same event as before was noticed, viz. pain, anteflexion, and further hæmorrhage. A pessary was applied before the patient was next allowed to get up, and there was no further hæmorrhage. In this case it seemed as if the stretching of the tissues at the posterior aspect of the uterus (where the effusion occurred), which resulted from the anteflexion, had given rise to laceration of vessels in that region, and that this was the explanation of the hæmorrhage.

#### RESULTS.

Absorption of the coagulum is the most common event, and this is the most favourable termination. In some cases the blood tumour bursts into adjacent viscera. The bowel is the outlet most commonly chosen, and the syrupy contents of the cavity then escape by stool, or flesh-like masses are passed in this manner from time to time, the tumour diminishing in size as this goes on. The tumour may burst into the vagina. It may burst also into the peritonæum, having been primarily either entirely extra-peritoneal, or else encysted in the peritoneal cavity. This latter termination is the most unfavourable, and it occurs more particularly in those cases where there is a recurrence of hæmorrhage.

## DIAGNOSIS.

In cases of peri-uterine hæmatocele, a defined tumour, or a hardness, resistance, and dulness not well defined, may be found to extend upwards a variable distance above the brim of the pelvis. It may reach beyond the umbilicus. There is in such cases an effusion of blood, and this blood, at first fluid, afterwards coagulated, forms the intumescence. The history of such cases is peculiar, the formation of the swelling occurs quickly, is attended with alarming faintness and prostration, and with an assemblage of symptoms which have been already alluded to (see chapter on 'Menorrhagia'). The physical characters of the tumour vary according to the stage at which the observation is made. Retention of urine, which may be produced by the condition in question, might possibly mask the true nature of the case; the distension of the bladder might, under such circumstances, disguise the other swelling.

One form of ovarian disease might be confounded with peri-uterine hæmatocele; thus, in one of an interesting series of cases, related by Dr. M'Clintock, the tumour due to the hæmatocele was for a time considered to be an ovarian tumour, into which hæmorrhage had occurred. The principal points to be borne in mind in the diagnosis of tumours suspected to be due to hæmatocele are, the sudden occurrence of the swelling, the previous occurrence of marked menstrual disturbance of some kind, and the peculiar feel communicated by the tumour. The preceding menstrual symptoms are the least constantly significative.

The vaginal examination is very important. A tumour can generally be felt through the vaginal walls, and constituted by the presence of blood, or masses of blood-coagulum in various stages of transformation, and of very various size.

The tumour so constituted has, as a rule, the following general characteristics: Its form is rounded, it is tolerably well defined, may be hard or soft, according to circumstances presently to be pointed out; usually limited to one side of the pelvis—the posterior and lateral aspects more particularly; in some cases the tumour is felt to surround the uterus on all sides. The vaginal wall is pressed downwards, and its canal thus encroached upon, according to the size and relations of the tumour.

The physical examination of the tumour, as effected by a vaginal digital examination, may, or may not, enable us to arrive at a diagnosis of its nature, but the physical examination, the



symptoms presented by the patient, and the history of the case, taken together, usually render the formation of a diagnosis comparatively easy.

The history is of the most assistance in a doubtful case. The tumour most resembles that produced by pelvic cellulitis; from it it is distinguished by the suddenness of its occurrence, by the absence of that hot, puffy condition of the vagina characteristic of the induration stage of pelvic cellulitis, by the absence of constitutional fever, and by the absence of the thickened brawn-like condition of the vaginal wall. The tenderness may be pretty nearly equal in both. In some cases, the hæmorrhagic effusion undergoes after a time suppuration, and the physical characters may then be identical with those of pelvic abscess. It will thus be seen that the diagnosis of hæmatocele from abscess is at first easy, but that it may be more difficult, later. From fibroid tumour, peri-uterine hæmatocele is distinguished by its want of uniformity and comparative want of solidity. The diagnosis of (unruptured) extra-uterine pregnancy, from peri-uterine hæmatocele, may be difficult in some cases, especially when a hæmorrhagic discharge is present. In extra-uterine pregnancy the uterus is enlarged, but enlargement, or at all events elongation, of the uterus may also be observed in hæmatocele (Duncan). If the case were one of suspected extra-uterine pregnancy at about four months, the absence of the general symptoms of hæmatocele would be confirmatory of the suspicion. Retroversion of the gravid uterus has been confounded with peri-uterine hæmatocele; but a careful consideration of the case should prevent a repetition of such an error.

Ovarian tumours in ordinary cases could not be mistaken for hæmatocele unless the ovarian cyst were in a state of inflammation, and the previous existence of the ovarian tumour unknown.

In the majority of cases the occurrence of the symptoms at a catamenial period, their instantaneousness, and the simultaneous appearance of a tumour rather soft or fluctuating, and of tolerably defined character, pressing on the vaginal walls—these, taken together, indicate a hæmorrhage in the neighbourhood of the uterus. In those cases of peri-uterine hæmatocele, however, where the development of the tumour is more insidious, there being an absence of marked symptoms at time of the occurrence of the effusion, the diagnosis is more difficult. In these latent cases the effusion is at first slight, and the tumour slowly increases in size.

In doubtful cases, the use of the fine aspirating trochar is of great service in aiding the diagnosis under such circumstances.

When the tumour is posterior, and we wish to ascertain the presence of fluctuation, we may with advantage make a double simultaneous examination from the rectum and the vagina. The diagnosis of cases of rupture of the foetus-containing cyst in extra-uterine pregnancy from cases of peri-uterine hæmatocele, is by no means easy. In cases of rupture of the tube in Fallopian pregnancy, the diagnosis frequently rests chiefly on this, that the woman known to be, or suspects herself to have been, pregnant. The attention of the attendant is likely to be diverted from the idea of pregnancy by the losses of blood which appear to be very frequently present in extra-uterine pregnancy, and which are erroneously looked on as evidence of menstruation.

Lastly, it must be recollected that an hæmatocele becomes sometimes converted into an abscess: when this is the case a careful investigation of the history and physical signs alone will indicate the actual state of things present.

#### TREATMENT.

When death occurs, it takes place usually either from hæmorrhage and collapse, or from peritoneal inflammation; the indications are, to arrest the hæmorrhage, to prevent inflammation, and, in certain cases, to promote external evacuation of the exuded products.

First, as regards the hæmorrhage. If the arrest of hæmorrhage be the chief indication, which will be judged of by the intensely pallid and faint state of the patient, our object should be to promote coagulation of blood already effused, and to check the flow of blood to the pelvic organs. One of the most important elements in the treatment, then, should be the observance of absolute rest in the horizontal position, not only during the attack itself, but between and during the succeeding menstrual period. Application of cold by means of bladders containing ice, placed over the pubes and the lower part of the abdomen, is of essential service. As a further help, the injection of iced water into the rectum might be suggested. The administration of food and drink requires careful consideration. If the patient were previously anæmic, or if there were reason to believe that the hæmorrhage was produced or kept up by the watery or vitiated character of the circulating fluid, a more liberal diet would be necessary; but under other circumstances, and during the acute stage, food and drink should be moderate in amount. For the

relief of the great prostration and collapse present in many cases, brandy or other stimulants should be liberally administered. Internal remedies—hæmostatics, as they are termed—are of assistance in checking the hæmorrhage under these circumstances; iron, ergot, sulphuric acid, are preferable.

In cases of intra-peritoneal hæmorrhage so excessive as to actually threaten dissolution—as in cases of rupture of the fœtus-containing cyst in extra-uterine pregnancy, it becomes a question whether surgical means should not be employed for the arrest of the bleeding—*e.g.* the abdomen to be opened as in the operation of ovariectomy, and the bleeding portions secured. There is no question that this method of treatment is justifiable and even necessary in the cases above supposed, the only difficulty being in making an exact diagnosis of the condition present. This operation will no doubt be performed, and death from hæmorrhage averted, when the diagnosis of such cases is better understood.

The question as to the propriety of puncturing the tumour when such urgent symptoms are not present is one on which some difference of opinion exists; some practitioners advocating it, while others reject it, or limit it to those cases in which the effusion is not intra-peritoneal at all. As a rule, it is better to interfere surgically as little as possible, for, by making a puncture, there is fear of giving rise to inflammation of the interior of the sac, to purulent infection, and the fatal consequences of the same. Trousseau,<sup>1</sup> in an admirable clinical lecture on the subject, expressed himself as opposed to puncture. Professor Braun, of Vienna, states that in six cases where puncture and evacuation of the sac was performed, cure followed. In three cases he adopted a passive treatment, with like success.

Sir J. Y. Simpson recommended that an opening should be made, if the tumour be enlarging from inflammation or otherwise. Nélaton and Voisin limit surgical interference to cases where there is violent pain with increase in size, and threatened rupture into the peritoneal cavity.

The view taken of this question by Dr. Matthews Duncan is to the following effect: If the blood remain in form of clot, it is likely to be absorbed, and in such a case puncture is not required. When liquefaction occurs, Dr. Duncan believes that the blood becomes mixed with pus and is almost sure to be discharged, and in these cases operative interference may be required. The practitioner has then to determine whether he will leave the case to

<sup>1</sup> *L'Union Méd.* Dec. 1861.



nature, or interfere; in some cases, it is often good practice to open the sac, in others it is the only good practice. The operation is undertaken to avert a threatened rupture, or with the view of shortening and assuaging the sufferings of the patient. Dr. M'Clintock, who had had a considerable number of cases under his care, was opposed to the use of the trochar, unless urgent symptoms were manifested in consequence of the bulk or mechanical pressure of the tumour; and not even then, unless it were in the chronic stage.<sup>1</sup> Dr. Meadows argues in favour of operative interference in cases where the swelling is so great that the uterus is pushed against either sacrum or pubes, making both micturition and defæcation a matter of great difficulty, while the swelling rises considerably above the pelvic brim. He justifies his opinion by reference to the high mortality of Bernutz's cases. Dr. Barnes' views are more in accordance with those of Dr. Matthews Duncan. For my own part, in the cases, some twenty or twenty-five, of the more severe character, which have come under my notice, I have not once employed puncture, though in one case I was on the point of doing so. I have only met with one fatal case. It appears on the whole that a puncture carefully made, and so as to avoid risk of introduction of air, would, in a severe case, shorten the duration of the malady, but, as a general rule, I am certainly decidedly opposed to puncture.

The difficulties of the operation are often not inconsiderable, and great care is required not to wound the bladder or other viscera. A sound should be passed into the bladder previously, in order to render evident the relation of this viscus to the tumour. In operating, the point which projects most into the vagina, and as nearly in the middle line as the nature of the case admits, should be chosen. The first opening made should be small, but when it is perfectly certain that the cavity is reached it should be enlarged. A large opening is necessary to allow of escape of clots. Care should be taken to prevent access of air to the cavity, and slight pressure should be afterwards continuously applied over the abdomen. If pyæmic symptoms supervene, they must be treated by copious use of stimulants, by bark, ammonia, etc. Injection of the cyst with water is not to be recommended, unless the discharge has become putrescent.

With respect to those cases where the effusion extends high up into the abdomen, it may be a question whether to perform an abdominal operation or not. In a case related by Dr. Duncan

<sup>1</sup> *Op. cit.* p. 271

paracentesis was performed, and the patient recovered. Such an operation is only admissible in exceptional cases, and where the tumour is very large.

Next, with reference to the peritonitis. The great pain present in these cases is of itself an evil, and it must be treated by exhibition of opium in sufficiently large doses. The most appropriate anti-inflammatory remedies, supposing such to be used, would seem to be local depletion by means of the application of leeches over the hypogastrium; such local depletion will also lessen the internal effusion of blood. Poultices and warmth, so useful in ordinary peritonitis, would seem absolutely contra-indicated, inasmuch as the hæmorrhage would be probably increased by their use.

The subsequent management of the patient will require caution. Everything calculated to give rise to excitement or congestion of the genital organs must be avoided. The patient must be enjoined not to take excessive exercise, to live moderately, but well. The anæmic condition of the patient generally indicates the employment of tonics, of ferruginous preparations, etc., care being taken, while restoring the strength of the patient, to prevent premature exercise of this strength. Sexual intercourse could not with propriety be allowed until after the lapse of some months at least. A patient who has once been the subject of peri-uterine hæmatocele requires continuous and careful watching for a considerable period; exertion of any kind, however slight in degree, may induce recurrence of the mischief, if undertaken too early. I have witnessed one case, that of an hospital patient, who was the subject of the affection three times, at intervals tolerably widely separated.

## CHAPTER XLI.

PELVIC CELLULITIS, PELVIC PERITONITIS, AND PELVIC  
ABSCESS.

Peri-uterine Inflammation ; its Frequency, Nature, and Seat—Progress and Route taken by the Effused Products—Symptoms and Effects of Pelvic Cellulitis.

DIAGNOSIS.

Seat of Intra-pelvic Inflammatory Affections—Question of Intra- or Extra-peritoneal discussed—Anatomy of Douglas Pouch—Perimetritis and Pelvic Peritonitis.

PELVIC CELLULITIS.—Course of Effusion, Resolution or Conversion into an Abscess—Causes—History.

PELVIC ABSCESS.

PELVIC PERITONITIS.—Typical Severe Cases—Chronic Cases.

TREATMENT.—Great necessity for Rest—Medicines—Diet—Evacuation of the Abscess.

THE affections classed under the above headings are of great importance and interest. These affections, moreover, may be said to be peculiar to the female sex. They are not unfrequently masked or unrecognised until an advanced period of their progress, and the consequences are frequently in the highest sense of the word serious.

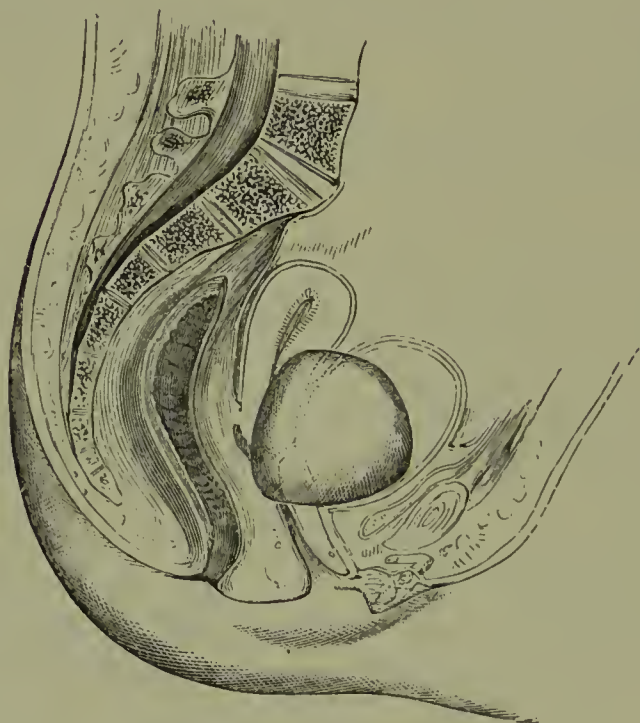
The affections here to be described are marked by occurrence of effusion of morbid products into the space surrounding the uterus and ovaries, and by the transformations undergone by these effused matters, one of which transformations is the conversion of the products in question into a purulent or puriform fluid. Tumours of varying shapes and consistence are found in the progress of such cases, situated generally not far from the uterus and interposed between it and one side or other of the pelvic wall. These tumours appear rapidly, remain generally for a considerable time, and disappear either owing to gradual absorption of the material of which they are composed, or by liquefaction and bursting of the tumour at the surface of the skin, or into the peritoneal cavity, intestines, or bladder.

The effusions appear to be, frequently at all events, the result of the introduction of an irritant from without. They are frequently witnessed during the puerperal state, after delivery at



term, or after miscarriages; may result from operations on the internal or external generative organs, from the introduction of a tent into the uterine cervix, or from the performance of a severe operation such as ovariectomy, or from a simple operation such as the removal of condylomata from the labia. These affections can hardly be said to be known as idiopathic affections.

There has been at various times much discussion as to the comparative frequency of intra-peritoneal and extra-peritoneal pelvic effusion, and it is remarkable that observers as a rule class themselves very decidedly as partisans of an almost exclusive view, the smaller number of authorities being those who admit a more equal distribution of the cases under one or other of the two categories.

FIG. 164.<sup>1</sup>

Thus, on the one hand, we have authorities who contend that in the large majority of cases where inflammatory effusions occur in the pelvis the peritoneum is its actual seat; 'pelvic peritonitis' or 'pelvi-peritonitis' being the designation employed.

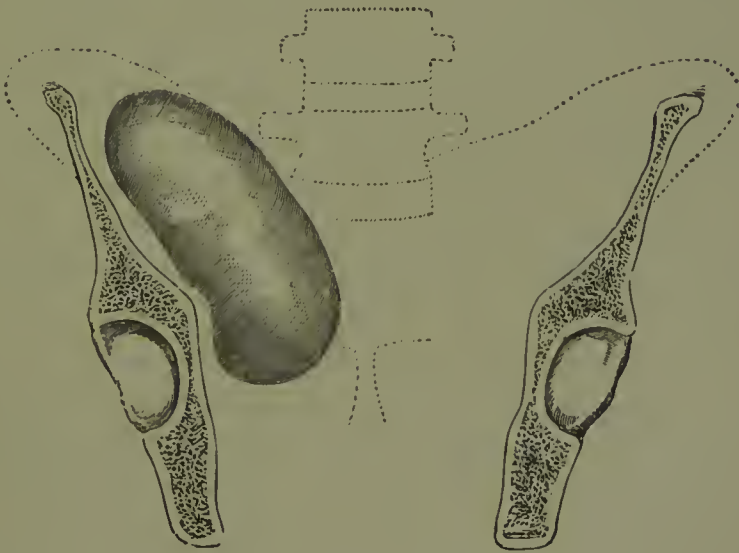
On the other hand, by many the seat of the effusion is believed to be in the majority of instances the cellular or connective tissue outside the peritoneum.

It might be supposed that it would be easy to determine the point in dispute by clinical observations, but in point of fact the

<sup>1</sup> Fig. 164 shows outline of the effusion (to the right of the uterus) in a case in University College Hospital.

determination is not easy. Very many of the cases recover and no *post-mortem* evidence is in such instances forthcoming; and it by no means follows that because *post-mortem* examination reveals the presence of pelvic peritonitis in some of the fatal cases, or even that it does so in the majority of cases when *post mortems* have been obtained, these results do not by any means necessarily prove that in the non-fatal cases, which constitute the actual majority, the seat of the effusion is also intra-peritoneal.

One of the points bearing on the decision of the question is an anatomical one, viz. the extent to which the Douglas pouch extends normally downwards behind the vagina. Thus Dr. R. B. Maury points out that, in common with some other writers on the subject, I have in the former edition of this work represented the Douglas pouch incorrectly, and that it really extends much lower

FIG. 165.<sup>1</sup>

than I have represented it. I am free to confess that the concurrence of testimony—that of the late Dr. Phillips, that of Mr. Spencer Wells, and others—is in favour of Dr. Maury's view on this particular point, and in the new drawings introduced into the present edition the Douglas pouch is represented in conformity with the conclusions just stated (see *ante*, p. 575). Thus, in some cases where effusion is found low down behind the vagina there is certainly a possibility—a possibility greater than was previously supposed—that the effusion may be intra-peritoneal. (Analogically

<sup>1</sup> Fig. 165 represents the outline of the effusion as imagined to be seen from the front. From the same case as that of fig. 164.

the same reasoning applies to the question as to the seat of hæmorrhages in this locality. See previous chapter.)

The result of my own observations has been the conclusion that in this country at all events the larger number of cases of so-called pelvic inflammation are cases in which the seat of the effusion is outside the peritoneum, and that the term 'pelvic cellulitis' is strictly appropriate for the greater number of cases. Dr. Matthews Duncan, following Virchow in his nosology, would term these cases of 'parametritis.' Dr. Priestley,<sup>1</sup> who has written a very complete account of the subject, prefers the term 'pelvic cellulitis.' In common with several other distinguished authorities Dr. Priestley appears to regard pelvic cellulitis as the more generally present condition. Dr. Emmet regards cellulitis as most common. Dr. Thomas considers that peri-uterine cellulitis is rare in non-pregnant women, while in such cases pelvic peritonitis is common. The chief authority on the opposite side is Bernutz, followed by Dr. Tilt and Dr. Meadows in this country; these latter authorities regard pelvic peritonitis as the more common affection.

It is not to be disputed that *post-mortem* evidence and the results of physical examination during life in certain cases is in favour of the occurrence of pelvic peritonitic exudations, effusions, contractions, and adhesions resulting therefrom in perhaps a considerable number of instances. And it is to be conceded also that pelvic peritonitis may occur as an independent and sole condition.

It appears, judging from the facts and opinions of those who chiefly advocate the pelvic peritonitis view—Bernutz, for instance—that in a considerable number of cases of pelvic peritonitis the influence of gonorrhœa is to be traced. Looking at the analogy between the testicle and the ovary, it would not be surprising that the ovary and its peritoneal covering should be inflamed in cases of gonorrhœa. Dr. Thomas appears to take this view of the matter.

Certain facts which have come under my own notice would lead me to the conclusion that pelvic peritonitis, with effusion more or less considerable, is liable to be witnessed in cases of gonorrhœal origin.

In drawing any general conclusion from the facts recorded by various observers regard must be had probably to the locality where the observations were made. For instance, it appears from the remarks of Dr. Emmet that pelvic inflammation is liable to

<sup>1</sup> *Reynolds' System of Medicine*, vol. x.



occur in patients treated in New York to a degree and with a frequency which does not appear to be observed in London. And it may be that the supposed greater frequency of pelvic peritonitis in Paris is due to climatic or local peculiarities; possibly also to the greater influence or greater frequency of the gonorrhœal element in one place more than another. One possible result of pelvic inflammation is the formation of pus; and thus becomes originated what has been generally termed a 'pelvic abscess.' Pelvic abscess is not a distinct affection, but only a particular mode of termination of the pre-existing pelvic effusion.

#### PELVIC CELLULITIS.

The first result observed in cases of pelvic cellulitis is the occurrence of an effusion which, although probably liquid at the very first, quickly assumes a certain degree of hardness to the touch, and later on becomes very hard. This hardness of the effused material was first described by Doherty, and it is a now well-recognised physical attribute of these effusions. The effusion may be slight in extent or more diffuse and extensive. It would seem that in some cases it is of a transitory character, constituting a sort of œdema, which may undergo rather rapid absorption; but in most cases it persists, the hardness increases, perhaps the effusion extends and becomes more considerable. Dr. West describes it as 'acute purulent œdema.' Virchow, who has specially examined the effused products, describes it under the term 'diffusé puerperal metritis and parametritis'; the tissues become swollen, thickened, hardened, and œdematous, and a fluid, first transparent, then opaque, exudes on section. The cells are enlarged, their contents thicker; they split up, and groups of smaller roundish granular cells are seen. As further consequences, there may occur coagulation and obstruction in the lymphatics there situated, and metamorphosis into purulent fluid.

The seat of the effusion now under consideration is the areolar tissue near the uterus: most commonly it is on the lateral aspects of the uterus, between the folds of the broad ligament, but it may be situated in front of the uterus or behind it. It is more particularly concerning the cases where the effusion occurs *behind* the uterus that it is doubtful whether or not most of such cases are not really cases of pelvic cellulitis.

Once started, the effusion may spread to a considerable distance in the pelvis, and even beyond it. The spread of the

effusion follows, however, certain definite paths, the fasciæ of the pelvis being so arranged that extension necessarily occurs in these definite directions. König<sup>1</sup> gives the result of some interesting experiments on this subject, made on bodies of women dying after labour. Injections of air or water were made into the cellular tissue under the broad ligament. The results were—1. Exudation into the cellular tissue in the neighbourhood of the tubes and ovary travels primarily along the course of the psoas and iliacus muscles, and then travels into the pelvis proper. 2. Exudations starting from the antero-lateral part of the cellular tissue, where the body of the uterus joins the cervix, fill first the cellular tissue of the true pelvis laterally, to uterus and bladder, and pass then with the round ligament towards Poupart's ligament, and thence to the iliac fossa externally and backwards. 3. Starting from the posterior part of the base of the lateral ligament, the parts first filled are the posterior and lateral parts of the pelvis—viz. the Douglas fossa; and the exudation then follows the course of those described under head 1. The effusion may, as I have myself observed, pass also out of the pelvis through the large or small sacro-sciatic notch. It may also pass across the pelvis in front of the bladder from one side to the other, and once above the pelvic brim it may extend to a very considerable distance upwards, dissecting the peritoneum away from the abdominal fascia and inserting itself between. The effusion, when large, displaces the uterus towards the opposite side of the pelvis. When at all considerable it appears to be inseparable from the pelvic wall, but its boundary in other directions is generally well marked. The surface, which can be felt, has a rounded smooth character.

When the effusion is posterior to the uterus it forms a large tumour, which may push the uterus so far forwards that the organ appears to be close to the symphysis, and it extends downwards towards the vulva, behind the vagina. It is in reference to these particular cases that there is doubt whether the effusion is not really in the peritoneum, at all events in some instances.

The effusion, having become hard, remains for a period, generally several days at least, and then undergoes absorption, becoming insensibly melted down, *or it is converted into an abscess*. When the conversion into pus occurs the fluid thus formed discharges itself by bursting into the vagina, into the bladder, into the rectum, and sometimes into the peritoneum, or passes out of the pelvis altogether to the groin, the iliac region, or the gluteal region, or down the

<sup>1</sup> *Archiv f. Heilkunde*, 1862, No. 6, p. 481.

inner side of the thigh, forming an evident external swelling, which either breaks or disappears. The formation of an external swelling does not necessarily indicate the presence of an abscess, for the effusion may so extend outwards, without transformation into pus, as a necessary consequence. And, after all, bursting, when it does occur, may happen internally without formation of any external aperture. Dr. M'Clintock found that in 70 cases of pelvic cellulitis, of puerperal origin, the case ended thus: 37 ended in suppuration with discharge of pus; 24 of these burst or were opened externally—viz. 20 in the iliac region, 2 above the pubes, 1 in the inguinal region, and 1 beside the anus; 6 were discharged *per vaginam*, 5 by the anus, and 2 burst in the bladder. In not one of these puerperal cases did the abscess burst into the peritoneal cavity, while this result was several times observed in a much smaller number of non-puerperal cases. Dr. West states that, in 34 out of 52 cases, the broad ligament was the seat of mischief, the cellular tissue between the uterus and rectum in 14 cases, and that between the uterus and bladder in 3 cases. Pus was discharged externally in 27 of these 52 cases.

The time occupied by the appearance, continuance, and disappearance of the effusion may, and often is, very considerable, spreading over many weeks in not a few cases, and in some cases months are occupied. When pus has once formed the course of the disease may be very chronic, and when, as sometimes happens, the cavity communicates with the bladder or the rectum, the aperture assumes a fistulous character and great difficulty is experienced in completely draining and closing it. A like difficulty is sometimes met with when the abscess burrows between the muscles of the thigh.

*Causes.*—Many cases of pelvic cellulitis occur after parturition, and under these circumstances they appear to be due either to an injury of the uterus during the parturition—*e.g.* laceration of the cervix—or to taking a chill; or are connected with some movement or premature exertion on the part of the patient. The manner in which the affection shows itself, and the circumstances of the case, generally give the notion that the exciting cause is the passage of a septic material into the blood-vessels, or possibly the lymphatics, one or both, and that this is the cause of the effusion. An injury or abrasion of the os uteri is the probable place of entry of such septic material in some cases; in others it may be the imperfectly closed vessels at the placental site. In several cases I have observed the attack was very distinctly produced by premature



physical exertion which it may be supposed led to septic absorption by deranging the contraction of the uterus, or by dislodging coagula from imperfectly closed uterine sinuses. It does not appear to me that chills are so often the cause of post-puerperal pelvic cellulitis as has been supposed, though it cannot be denied that cellulitis appears due to chills or external application of cold in some cases.

Bruising or laceration of the cervix uteri appear to be the most common causes of pelvic cellulitis. The two typical examples of this are injury during parturition and injury irrespective of parturition by a tent, or by the use of the uterine sound, or in any other like manner.

The *history* of cases of pelvic cellulitis, of which those following delivery may be taken as typical ones, is generally characteristic. Rigors, pain more or less intense, quick pulse, irritative fever, mark the onset of the inflammatory action; but these initial symptoms may be absent, the patient gradually becoming indisposed, without occurrence of acute symptoms of any kind. Thus it is not uncommon for a patient, who may have got over the period of lying-in tolerably well, to evince three or four weeks later symptoms of general indisposition; she becomes weaker and weaker; she is emaciated, complains of pain down the legs, or in the pelvis; the appetite and digestion fail; there are occasional chills; and after these symptoms have lasted a week or two, the more decided pelvic symptoms—difficulty and pain in defæcation and micturition—are evident. If movement be attempted, pain is produced: this may be taken to be due to mere weakness, the real mischief being overlooked. A quick pulse is, however, always present from the beginning. When we are called to the case at a somewhat later period, we usually find that there has been a good deal of pelvic pain and uneasiness, pain and difficulty in micturition and defæcation, high fever, temperature running up to  $102^{\circ}$  or  $103^{\circ}$ , with evening exacerbations, night sweats, hectic, diarrhœa, and all the signs of violent and dangerous constitutional disturbance; and the presence of the tumour now alluded to is perhaps the last thing which is detected. These symptoms may, however, be absent. The tumour is not always painful when touched, though the vagina as a whole is tender and hot to the touch; the vaginal wall covering it is thickened, indurated, and conveying a very different impression from that which is present when a tumour of another kind simply presses on the vaginal wall, and is not connected to it by inflammatory exudation, etc.; at the latter stage of the affection

tenderness may be absent, or at all events be much diminished. The hardness of the tumour has been already alluded to as a remarkable feature. In a later period it gives place to softness and fluctuation when undergoing liquefaction, but softness does not, according to my experience, precede resolution.

Neuralgic pains are frequently present, due to pressure of the effused products on the nerves passing through the pelvis. These neuralgic symptoms vary: they are either a sensation of coldness, or increased warmth of the surfaces to which the nerve leads, an intense pain, or other altered sensation. König observes truly, that the external cutaneous nerve of the thigh is the one most frequently affected; at other times the crural nerve chiefly, or the sciatic nerve. One symptom is very frequently present, viz. flexion of the thigh on the trunk; the patient experiences pain when the thigh is extended, owing to the distension present around the psoas muscle, and which is necessarily increased by extension. The sign in question is almost pathognomonic of pelvic cellulitis or abscess. Pelvic cellulitis may, however, be present unaccompanied by this symptom, for when the mischief is in the anterior part of the pelvis, or in such a position as to be out of the way of the psoas and iliacus muscle, it may be found wanting. This distinction I have been able to make in several instances.

Other symptoms attendant on pelvic cellulitis and abscess are—vesical catarrh, indicative of proximity to the bladder; rectal disorders; passage of bloody mucus and tenesmus; anomalies of defæcation and micturition, these functions being generally more or less interfered with.

#### PELVIC ABSCESS.

For the full history of these cases reference is to be made to the preceding remarks. It not unfrequently happens that the first indication of the presence of a pelvic exudation is the escape of pus from the vagina or from the rectum. In some cases the transformation into pus proceeds very rapidly, while in others it occupies much time. Acuteness of the symptoms—that is to say, severity of pain, great elevation of pulse and temperature—generally indicate pus formation. But not always. Further, when the pain is so severe and the pulse and temperature so high, the bursting of the abscess is generally imminent.

The diagnosis of pelvic abscess from pelvic cellulitis is not

always easy : the presence of fluctuation is a help in some cases, particularly when the abscess has made its way to the surface of the skin in the groin or elsewhere. In some cases of pelvic abscess, whether resulting from pelvic cellulitis or from pelvic peritonitis, there is a liability to the occurrence of *septicæmia* ; and the course of such cases is often fatal. Absorption of septic material into the general blood-current happens more generally when the abscess has made for itself an opening, or when it has been punctured for the purpose of evacuating it. When septicæmia results there may be a quickly fatal termination, or the disease may assume a more chronic form.

The rapidity with which pelvic cellulitis changes into pelvic abscess varies in different cases. I have known an abscess to form in as short a time as three days, and be evacuated spontaneously on the fifth. More usually the formation of pus occurs much more slowly than this.

#### PELVIC PERITONITIS.

The differences of opinion entertained by various authors as to the frequency of this condition has been already adverted to. It seems certain that plastic exudation may occur in the pelvis around the ovaries, one or both ; also that serous exudation may occur in the pelvis, and that this serous exudation may become encysted by adhesions forming superiorly and shutting it off from the general peritoneal cavity ;<sup>1</sup> also that exudation, quickly assuming a puriform character, may form in the pelvis and constitute a tumour of considerable size behind the uterus in the Douglas pouch and in the parts above this, and that this puriform collection may be limited to the pelvis by adhesions formed superiorly. Further, it appears that the large tumour so formed may burst into the general peritoneal cavity or elsewhere.

<sup>1</sup> Thus, Dr. Matthews Duncan has called attention to certain interesting cases in which large accumulations of a serous fluid have been found behind the uterus, resulting probably from local peritonitis (perimetritis). The cavity enclosing the fluid is supposed to be separated from the general peritoneal cavity by adhesions. In one case as much as eight ounces, in another nine, were drawn off by a trocar, the perforation being made at the back of the vagina. Dr. Duncan contends that the supposed cures of ovarian dropsy after rupture of the cyst into the abdomen are probably cases of this kind. There are difficulties in accepting the latter explanation, the magnitude of the tumour in some of the cases of ovarian cyst rupture being infinitely greater than any case Dr. Duncan brings forward of peritoneal serous cyst. I have myself witnessed a case in University College Hospital where an autopsy proved the case to be one precisely of the kind here described.



The typical severe case is that arising from septic action at the internal uterine surface. For instance, a sponge tent is introduced, allowed to remain too long, or otherwise mismanaged, and acute peritonitis is set up together with metritis; a puriform fluid is formed in the pelvis, and the uterus becomes covered by a layer of plastic lymph. Another type of case is that in which *gonorrhœal inflammation* seizes on the peritoneum covering the ovary on one side or on both, and exudation occurs in the pelvic cavity. Bernutz stated that nearly a third of cases observed by him were gonorrhœal in origin.

There are probably several other ways in which pelvic peritonitis originates—*e.g.* menstrual derangements of various kinds, venereal excesses, and traumatic causes.

The cases of pelvic peritonitis apparently differ from cases of pelvic cellulitis chiefly in the fact that the affection is situated more in the middle line and behind the uterus in the former than in the latter class of cases; and it is believed by some good authorities that a very large tumour situated behind the uterus in a median position must necessarily be due to pelvic cellulitis.

There appear to be no very decided points of difference between pelvic cellulitis and pelvic peritonitis other than those—admitting their validity—which have been mentioned. The constitutional and local effects seem to be very much alike in both classes of cases. The symptoms would, on the whole, be expected to be more acute in cases of pelvic peritonitis, and the gravity of the case would be proportionately greater also.

It seems probable that in some cases pelvic cellulitis becomes complicated subsequently with pelvic peritonitis. Such complication would render the discrimination of the precise seat of the affection additionally difficult.

Certain effects liable to be produced by pelvic peritonitis are very important. Thus, exudations on the peritoneal surface of the ovaries may seriously injure the ovary as a gland, and interfere with the proper discharge of ova afterwards in cases where the course of the disease is chronic, or where the peritonitic exudation becomes contracted in such a way that unnatural adhesions occur between the surface of the ovary and the pelvic wall. The Fallopian tubes also may become fixed to adjacent parts in such a way as to interfere with their proper action. Again, the peritoneal surface of the uterus may become adherent to the ovary or to the pelvic wall as a result of the pelvic peritonitis. Doubtless some cases of sterility are cases where peritonitic

adhesions and thick false membranes have tied down the organs and crippled their proper action.

#### DIAGNOSIS.

Cases of pelvic cellulitis, pelvic peritonitis, and pelvic abscess may be classed together, for diagnostic purposes.

When an enlargement of the lower part of the abdomen is observed in a woman who has been delivered recently, who has recently had an abortion, or who has been the subject of an operation involving the generative organs, the formation and development of the tumour having been attended with inflammatory symptoms, tenderness, feverishness, etc., the existence of pelvic inflammatory exudation is to be suspected.

The diagnosis is usually easy. The tumour formed in the pelvis may rise above this cavity, and be perceivable in one or other groin, or even considerably higher; or it may form a tumour, rising in the middle line above the pubes. Its limitation is made by palpation and by percussion. The skin covering the tumour may become red and inflamed, when evacuation of an abscess is to occur through the abdominal wall. The abscess may, however, burst into the vagina, or into the bladder, rectum, etc.

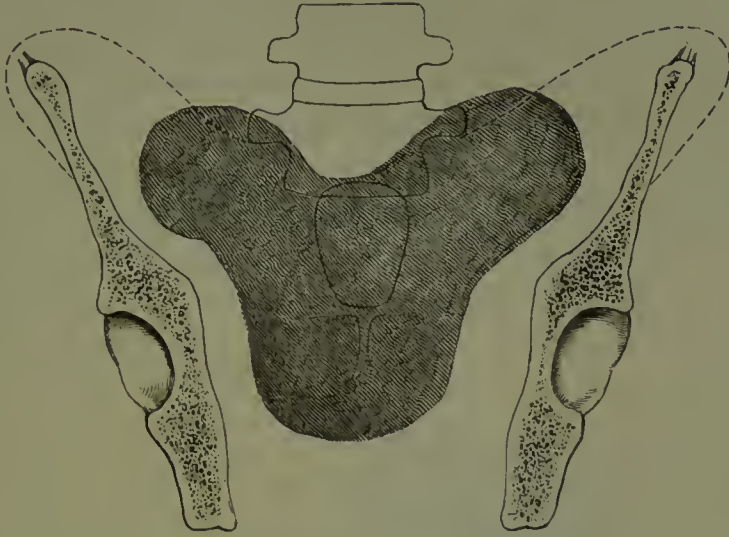
The iliac regions should be carefully and daily examined by the hand, in all cases of convalescence after uterine inflammation, or when the patient has been subjected to the operation of causes tending to produce pelvic abscess. Tenderness on pressure, continuous uneasiness, and the presence of febrile symptoms indicate probability of existence of cellulitis. The vagina should be carefully examined by the finger, and resistance or localised hardness may then be found to be present.

There are other conditions capable of giving rise to abscess, which abscess may present at some portion of the abdominal wall, above the groin, or in the middle of the abdomen. In some rare instances these conditions might be confounded with pelvic abscesses of the more ordinary kind.

Abscess in the iliac region may be due to caries of the vertebral column; abscess above Poupart's ligament on the right side may be due to inflammation or obstruction of the appendix vermiformis. In cases of retained encysted foetus, suppuration, formation of abscess, and spontaneous discharge of the contents through the abdominal wall, are frequently observed. In this latter

event there would be a history of peculiar character. Ovarian tumours sometimes suppurate, and the resulting abscess opens externally.

FIG. 166.



The condition with which ordinary pelvic cellulitis is more likely to be confounded is peri-uterine hæmatocele. The two accompanying figures exhibit the similarity of outline of the tumour

FIG. 167.



in the two cases. Fig. 166 represents the shape of the abdominal tumour in a case of peri-uterine hæmatocele.<sup>1</sup> Fig. 167 gives an idea of the tumour in a case of pelvic cellulitis.<sup>2</sup> The resem-

<sup>1</sup> Case of Owen, Univ. Coll. Hospital, 1866.

<sup>2</sup> Case of Parnell, Univ. Coll. Hospital, 1866.



blance between the two as regards the configuration of the tumour is obvious. [The *lateral* aspect of the tumour in these two cases respectively may be such as is shown in fig. 168] In both the tumour rises from below, and in both cases the margin of the tumour is rounded, generally rising higher on one side, presenting variations in hardness and resistance, and softness and fluctuation, according to the stage of the affection. And it now and then happens that the contents of the hæmatocele undergo a process of suppuration, the hæmatocele becoming converted into an abscess.

The tumour due to peri-uterine hæmatocele forms rapidly, that due to pelvic cellulitis slowly: this is the principal distinction.

FIG. 168.<sup>1</sup>

The general symptoms are marked. The fixed pain in the pelvis, generally on one side; the tenderness on pressure above Poupart's ligament over the brim of the pelvis—a sign rarely absent; the tenderness on vaginal examination; the flexion of the thigh on the trunk on the affected side; the general disturbance, manifested in feverishness, inappetency, hectic, frequent pulse, prostration, gastric disturbance, etc., the occurrence of rigors, or a feeling of coldness at the onset of the affection; the pressure signs;—these are the most characteristic indications.

Fig. 168 represents the contour of the hard rounded tumour as felt from the vagina. Fig. 167 (on p. 601) represents the contour as supposed to be viewed from the front. Their outlines illustrate a case in University College Hospital.

The vaginal examination is of great importance. The tumour perceived by the finger is generally hard, identified as it were with the pelvic wall, often inseparable from the uterus, situated at one side or in front of the uterus, and partly behind it, or chiefly in the middle line posteriorly. It is reached with some little difficulty when the effusion occupies the brim of the pelvis, but even then a careful examination will enable the observer to define its lower border. An abdominal examination will render evident its outline superiorly.

In the first stage the tumour is hard—when liquefaction has occurred fluctuation may be evident.

There are some affections with which pelvic abscess may be confounded—peri-uterine hæmatocele, extra-uterine pregnancy, ova-

FIG. 169.



rian tumours of rapid growth (as in a case referred to by König), or which have become the seat of inflammation (M'Clintock). The history of the case is exceedingly important in reference to the diagnosis. Chronic cases of peri-uterine hæmatocele, where the tumour undergoes a process of liquefaction, offer, so far as the physical characters are concerned, most resemblance to cases of pelvic abscess. Careful scrutiny of the facts relating to the development of the tumour, of the attendant symptoms, and the result of abdominal examination, will afford means for deciding the question. (See chapter on 'Hæmatocele.')

In cases where retroflexion of the uterus exists it sometimes happens that pelvic cellulitis, or even pelvic peritonitis, is present as a complication. Here there would be present a large tumour, constituted by the much congested uterus, perhaps fixed by

exudation around it. The sound would render the diagnosis of such a case easy. Malignant tumours could hardly be confounded with the tumour produced by pelvic cellulitis or pelvic peritonitis.

#### TREATMENT.

For practical purposes the remarks concerning treatment of pelvic cellulitis, pelvic peritonitis, and pelvic abscess may be made collectively, for, although technically different, they must be regarded, so far as treatment is concerned, from pretty much the same point of view.

We have to do with what may be considered, if I am not mistaken, as a local septicæmic action in most of these cases. The general indications are to prevent further advance of the inflammation or irritating action, to promote the resolution and absorption of the effused products, to promote the escape of purulent collections when such have formed, to sustain the strength of the patient while battling against the depressing influence of the affection, to relieve pain, to assist the action of the bowels, and, generally, to do what seems required to promote the restoration of health.

Rest, in bed, is absolutely required. Nothing, perhaps, is more important than this. And it is even advisable, in most cases, that the patient should not be allowed to move from the horizontal position for any purpose. Cases are often unduly protracted from want of attention to this precaution. This applies in all cases, whether there be simple cellulitis, or pelvic peritonitis, or abscess. It is in some cases very useful to place a pillow, or double inclined plane well cushioned, under the knees, to relax the psoas and iliacus muscles.

Rest must be continued for some time, even days after the patient is feeling better. The malady is very tedious, and has a great tendency to recur. If the patient is allowed too soon to sit up, it is almost certain there will be fresh inflammation, exudation, and elevation of temperature.

When abscess exists, or has been opened on the surface, the position of the patient should be such as to favour escape of the fluid contents.

Pain requires to be treated by soothing remedies. Vaginal injections of water, temperature  $100^{\circ}$  to  $105^{\circ}$ , are very grateful to the patient, and may be used twice a day. Hot fomentations, or linseed-meal poultices, should be applied to the hypogastric region.



Morphia suppositories or laudanum may be placed in the rectum to relieve pain and discomfort and sleeplessness.

The bowels require careful attention. One of two plans I have generally employed—either to give a small dose of castor-oil regularly every other day, or to order an enema of tepid water every second day. Collections of fæces are liable to occur and give great discomfort. The room should be kept moderately warm—60°. The whole body should be sponged once a day with warm water, this being carefully done so as not to chill the patient.

The diet should be liberal. Most patients are weakly and prostrated, and there is reason to believe that this is an initial condition, and that, had it not been for the general weakness, the patient would not, in the majority of cases, have become affected with the cellulitis. Hence, careful nourishment is required. The appetite is almost always very indifferent. For food, eggs, soups, Brand's essence of beef, beef-tea, and milk are suitable at first. They must be given frequently, in small doses at a time. A little champagne or weak brandy-and-water are often of service. If an abscess exist, and it is in process of discharging, the patient may require what seems a very large quantity of nourishment and stimulants. When it can be given, meat may be administered a little at a time. The feeding of the patient in a case of cellulitis, or abscess, is a matter of quite first-rate importance, and I have several times observed a most marked improvement to set in from the date on which particular attention had been devoted to it. Care must be taken to give food at night—a matter often neglected.

Quinine alone, or with iron, is often required; dilute nitro-hydrochloric acid and bark is a good combination also in many cases. Mercury used to be given, but it has always seemed to me to be objectionable. Later on in the case, iodine of iron is a good medicine.

The question as to the evacuation of the abscess, when such is present, is an important one. The natural evacuation is undoubtedly the best, unless this is procured at the expense of permanent disorganisation of the pelvic viscera; but it is certain that in some cases artificial evacuation hastens the cure very materially. The selection of the time and place for puncture—if early puncture be decided on—requires great judgment. If the abscess be opened from the vagina, extreme care is necessary to avoid wounding the pelvic viscera; a soft point may be chosen for the puncture, if there be no actual pointing of the abscess. Dr. M'Clintock believed that

those cases end most favourably which are evacuated externally. Where the abscess points at some part of the abdominal wall, it is better to wait until the skin is thoroughly implicated. If a puncture be made from above, it should be made as near to the pelvic brim as possible, in order to avoid the peritoneum, and if the swelling extend far out towards the iliac region, the puncture should be made close to Poupart's ligament; to avoid the sheath of the crural vessels, the puncture should be made external to the surface of Poupart's ligament. The aspirator is now frequently employed instead of the bistoury for opening the abscess. When fluctuation is clearly evident, the operation is devoid of uncertainty, but under other circumstances there is risk of missing the abscess altogether. Unless, therefore, the position of the abscess be otherwise than by fluctuation distinctly indicated, it would be better to wait than to operate early, although by so waiting some time would be lost. The Listerian antiseptic method of operating possesses very great advantage in such cases, and I have employed it in some such cases with great success. A compress of cotton wool should be afterwards lightly applied over the whole hypogastric region.

Mercurial inunctions, recommended in chronic cases, appear objectionable. Iodide of potassium ointment is very suitable and serviceable. Painting the lower part of the abdomen with strong iodine (liq. iodi) appears of great service where induration remains, and it is desirable to remove it. When the abscess burrows in the thigh, strapping of the thigh will prove useful, the foot and leg being previously bandaged.

The treatment of cases of pelvic peritonitis must be conducted on the same principles as those recommended in cases of pelvic cellulitis.

In all cases when pelvic inflammation has existed there appears to be a great tendency for the malady to be reproduced, unless great care be taken of the patient during convalescence. The impatience of the sufferer frequently prompts her to leave the bed before the cure is sufficiently advanced, and it is generally necessary to insist on the maintenance of the recumbent position for a fortnight or so after all pain and local inconvenience have ceased.

In some cases the malady is very protracted, and, spite of good treatment, the powers are so low that no substantial advance is made. Change of room or change of air are occasionally advisable under these circumstances.

## CHAPTER XLII.

## FIBROID TUMOURS OF THE UTERUS, POLYPUS, AND FIBRO-CYSTIC TUMOURS OF THE UTERUS.

Fibroid Growths of the Uterus—General Remarks—Four varieties: 1. Sub-peritoneal or Peri-uterine; 2. Interstitial or Parietal; 3. Submucous Fibroid Tumours; 4. Fibrous Polypi—Progress of these Growths as a whole—Absorption—Cystic Transformation—Fibro-cystic Tumours—Illustrative Cases—Recurrent Fibrous Polypus (Sarcoma of Uterus)—Symptoms produced by presence of Fibroid Uterine Growths—Glandular and Mucous Polypi.

DIAGNOSIS.—Tabular statement of Cases.

ETIOLOGY.

TREATMENT.—Preventive—Removal by Surgical Procedures—Operations for Polypus: by Scissors, Knife, Écraseur, etc.—Operations when the Growth is Intra-uterine—Polypoidal Tumours—Removal by Enucleation—Destruction by Partial Removal—Treatment of the Hæmorrhage they produce by Incision of the Cervix—Treatment of Interstitial and Sub-peritoneal Growths—Removal of Fibroid Tumours by Gastrotomy—Statistics of the Operation—Hysterectomy—Battey's Operation—General and Palliative Treatment in cases of Fibrous Tumour of the Uterus—Food; Ergot; Kreuznach Baths; Electrolysis; other Remedies.

THE uterus is liable to be affected with growths of a peculiar character, variously designated 'fibroid tumour,' 'fibroma,' 'myoma,' 'fibrous polypus,' etc. The 'fibro-cystic' tumour of the uterus appears to be a variety of the same kind of growth.

These fibroid growths are very important in the pathology of the female sexual organs. They often interfere mechanically with the uterine functions, cause difficulties in menstruation, pain, prevent impregnation, lead to miscarriages, and give rise to various minor inconveniences. They sometimes destroy the subjects of them.

Any part of the uterus may be the original seat of the affection. In their essence these fibroid growths have a structure like that of the uterus. They are, for the most part, rounded, well-defined masses, more or less isolated from the adjacent parts, but still preserving, when in an active state, a regular vascular connection with those parts. They are subject to decay, absorption, and certain curious changes, and their period of activity is usually limited to



the period of sexual vigour. They are found equally in the single and the married, are more usually observed after the age of 25, but often remain up to an advanced age. The particular period of life in which these growths have been observed is that during which the uterus is in the highest degree functionally active. Scanzoni considers that the fibrous tumour of the uterus is most common between the ages of 35 and 45; but of eighty-seven cases tabulated by Dr. West, twenty-one cases occurred between the ages of 20 and 30. Out of ninety-six cases it was observed by myself in eight cases before the age of 26.

It is highly probable that the fibroid tumour of the uterus is very frequently present in cases where its existence is not suspected; for, in certain positions of these tumours, the symptoms are not such as to attract particular attention. For this reason we may perhaps be justified in presuming that the frequency of the disease before the age of 30 is not indicated in most tables given on this subject. The statement of Bayle, to the effect that the fifth part of women above 35 years old are affected with fibrous tumour of the uterus, does not appear to be borne out by more recent pathological inquiries. The disease is of frequent occurrence undoubtedly, but the case is overstated by Bayle. Sometimes they occur singly; more often we meet with two or more in the same uterus.

The size of these growths varies from a pea to a mass large enough to occupy the whole abdominal cavity. In a case which I have related in the 'Obstetrical Transactions,'<sup>1</sup> the tumour, which grew from the uterus near the cervix, measured, when removed from the abdomen, 16 inches in diameter and 44 inches in circumference, and its weight was 42 lbs. The patient, who had been under the care of the late Dr. Uvedale West, of Alford, died almost suddenly, from an attack of hæmorrhage, at the age of 53, and the tumour had been growing for ten years.

In Walter's celebrated case the tumour weighed 71 lbs., and others of still greater bulk have been described.

Fibroid growths of the uterus are now divided, according to the accident of their position, into the following classes:—

*a.* Those growing from the exterior of the uterus by a pedicle, or sessile, as the case may be—*sub-peritoneal*.

*b.* Those growing in the thickness of the uterine wall, covered on both sides by uterine tissue—*parietal* or *interstitial*.

<sup>1</sup> Vol. ii. p. 240.

c. Those growing from the internal wall, projecting more or less into the cavity—*sub-mucous*.

d. Those attached to and growing from the interior of the uterus, and connected to it by a narrower portion—the pedicle—*fibrous polypus*. Many of these cases have been at one time of their career sub-mucous fibroid tumours.

Each of these must be considered separately.

a. *The sub-peritoneal fibroid growths* may originate at any part of the surface of the uterus, mostly from the upper part of the organ. Sometimes they originate quite low down on the part of the uterus designated as the cervix. These tumours attain a larger size than those situated in the wall of the uterus or within

FIG. 170.<sup>1</sup>



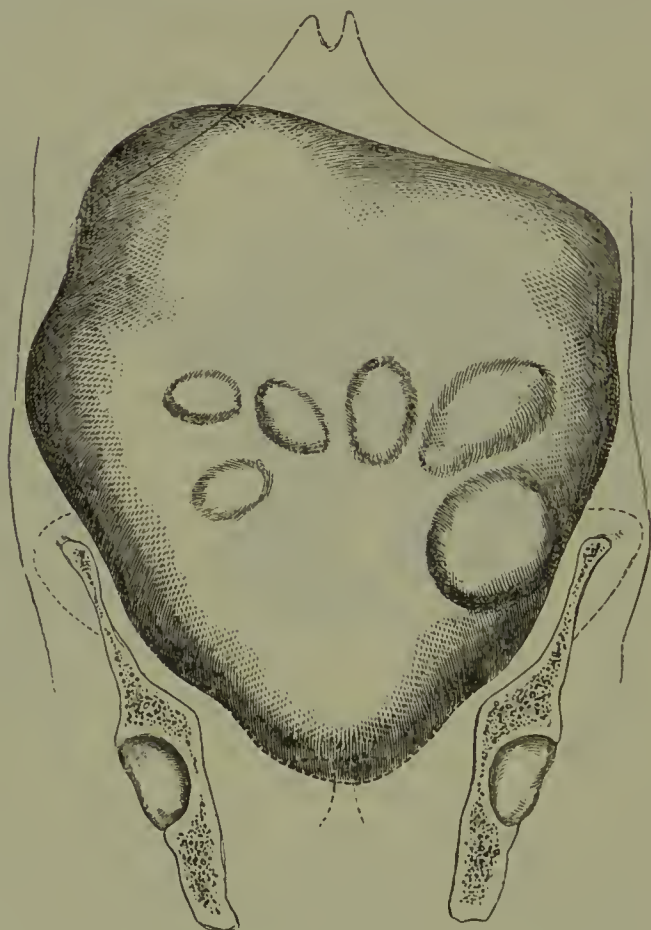
it; the very large specimens belong to it; they are attached by a broad or narrow portion. The pedicle may be of considerable length and corresponding tenuity, and the tumour then hangs freely in the abdominal or pelvic cavity. If the tumour is broadly attached to the uterus, this organ generally increases much in size, but if the pedicle is narrow, such is not the case. In the very large tumour (41 lbs.) previously alluded to, the uterus was quite atrophied. We often see more than one sub-peritoneal tumour in the same patient.

A very curious feature in the history of these sub-peritoneal tumours is that the pedicle is sometimes torn across, and the mass

<sup>1</sup> Fig. 170 represents a small fibroid tumour of the interstitial variety growing in the uterine wall. From a preparation in University College Museum.

entirely separated from the uterus, while the tumour itself becomes fixed to and grows on some other part of the peritoneal surface. This transplantation of fibroid tumours has been observed in several cases: it appears to be produced by the tumour becoming adherent elsewhere; the pedicle becomes stretched, possibly also *rotated* in consequence of the motions of the uterus and intestines, and finally gives way.

Here it must be mentioned that fibroid growths are sometimes found connected with the peritoneum in the vicinity of the uterus

FIG. 171.<sup>1</sup>

which have an origin independent of the uterus altogether. These must not be confounded with transplanted fibroid tumours of the uterus. It appears that growths in no way distinguishable by their microscopic characters from uterine fibroid tumours may originate in the position above indicated. Sir James Paget observes that they are probably limited to those parts in which fibrous and smooth muscular tissue, like that of the uterus, ex-

<sup>1</sup> By way of contrast to fig. 170, fig. 171 shows a fibrous mass of enormous size, from a patient at University College Hospital, who had been the subject of this growth for upwards of ten years.



tends—that is to say, the utero-rectal and utero-vesical folds of the broad ligament.<sup>1</sup> Muscular fibres lying under the peritoneum covering the uterus, broad ligaments, and ovaries, and serving certain important purposes in the process of ovulation (see p. 13), exist in the positions mentioned by this eminent pathologist as those in which fibroid tumours may originate. It is likely that the fibroid tumours of the ovaries—which are extremely rare—belong really to the category now under consideration, and that they originate in the muscular layer under the peritoneum in the neighbourhood of the ovary. Even in the ovaries themselves—if we adopt the views of some observers—are to be found muscular fibres, the presence of which would account for the initiation of fibroid tumours of the ovary. I believe it will serve a useful purpose if we denominate these tumours as *peri-uterine fibroid tumours*, in order to distinguish them from those actually and primarily connected with the uterus.

*b. Interstitial or parietal fibroid tumours.*—These do not attain usually so large a size. The uterus always grows as a whole, enlarging often to a very great size. These tumours have usually a loose connection with the organ, being enclosed in a capsule, out of which they may be generally shelled on cutting through the uterine wall containing them (see fig. 170). They have vascular relations with the uterus at one or more points only. They are found in the wall of the body of the uterus; they distort and alter the shape of the cavity of the uterus; if the whole organ become very large the uterus generally rises as a whole out of the pelvis. In some instances its shape prevents its escape from the cavity of the pelvis, and distressing results may then ensue.

*c. The sub-mucous fibroid tumours* resemble those last described, but they project more into the uterine cavity. Thus we may find the uterine cavity of great length, but having a crescentic outline owing to one of these tumours, which may be of great size, occupying one side of the uterus. The opposite side is expanded and stretched over it.

FIG. 172.<sup>2</sup>

<sup>1</sup> *Surgical Pathology*, p. 140, 1st ed.

<sup>2</sup> Fig. 172 represents the outline of a uterus affected with fibroid tumours, interstitial and sub-peritoneal, from a patient in University College Museum.

All sorts of varieties in regard to position are observed. These sub-mucous tumours are generally encapsuled. After the lapse of some time many of them become fibrous polypi.

*d. Fibrous polypi of the uterus.*—These generally originate as sub-mucous fibroid tumours. They are attached to the inner surface of the uterus by a pedicle of very varying thickness. Sometimes the attachment is very wide, covering the whole fundus or the whole of one side. Their size varies from a pea to the size of a child's head, or even larger. When not larger than an egg, they usually escape from the uterus, or partially so, and hang down into the vagina; but when larger than this they may be retained wholly in the uterus for some years. Much depends on the size of the pedicle; when narrow, they may be pushed down into the os uteri early. They present a smooth exterior, and are usually quite hard and firm. They excite much irritation, bleeding, and frequent contractions of the uterus (see fig. 176).

We may now consider the nature, history, and progress of these fibroid growths of the uterus as a whole.

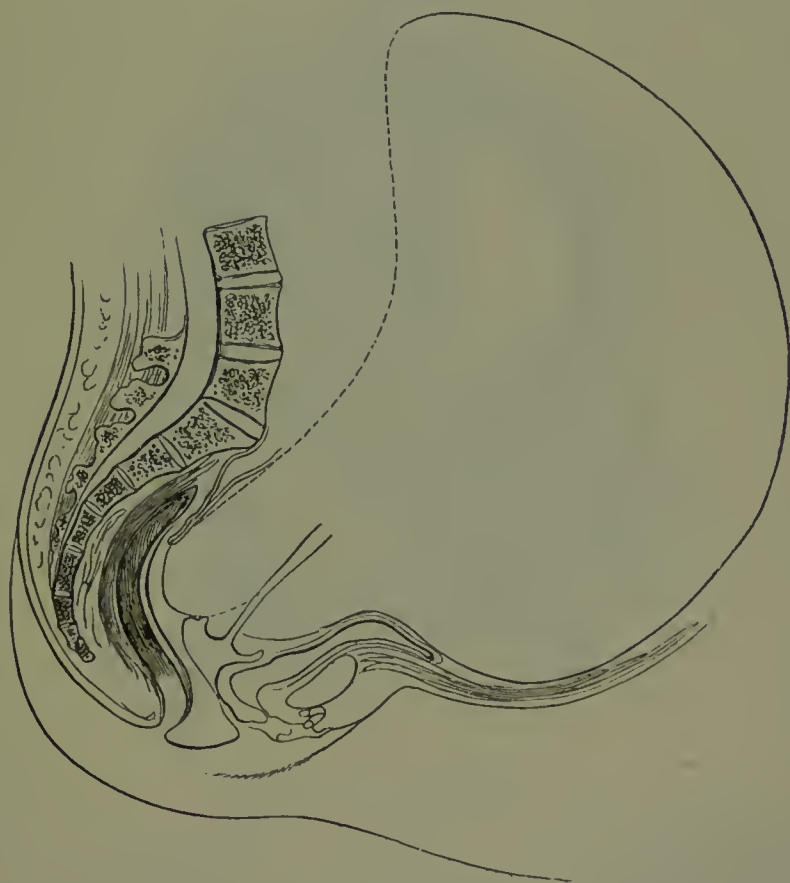
Their *growth* is always slow. Thus a tumour may be ten or twelve years attaining the size of a melon, and it would hardly attain such a size as this in less than three or four years. This will convey some idea as to the rate of progress.

As to their *structure*, it is pretty uniform. Vogel named them 'muscular' tumours. They contain many muscular fibres of the unstriped variety, precisely like those found in the substance of the uterine walls (see fig. 1A, and fig. 176). There are also many delicate filaments presenting an undulating or waved arrangement. These two elements constitute the bulk of the tumour, but there are to be seen also many fusiform nucleated cells with granules and molecular matter. They have on section a dense whitish structure, in which can be recognised the rounded nest-like portions of which they are made up. The appearance of the section much resembles that of the uterine wall. Harder or softer, now vascular, now paler; such are the variations observed.

They sometimes remain stationary as regards growth. More generally they tend outwards, growing towards the exterior or interior of the uterus, according to their primary position. Growing internally, they become *polypi*, and either remain suspended for a longer or shorter time by a pedicle from the interior of the uterus, or become detached therefrom and expelled entirely.

The question as to whether they are capable of undergoing

absorption has been much debated. There can be no question, however, that these growths do undergo absorption in certain cases. Dr. Playfair<sup>1</sup> has adduced cases to prove this. I have observed in my own practice a sufficient number of facts to thoroughly convince me that such absorption may occur, and have known tumours of considerable size to actually disappear after a lapse of time varying from two to three or four years. In other cases, again, I have known them to undergo great diminution. This point will be considered further under the head of treatment.

FIG. 173.<sup>2</sup>

Dr. John Williams has observed that fibroid tumours of the uterus undergo, frequently at all events, notable alterations in size at apparently regular times, these changes having important relations to the menstrual periods.

Dr. Williams<sup>3</sup> relates five cases in which the changes which occur

<sup>1</sup> *Obst. Trans.* vol. x. p. 102.

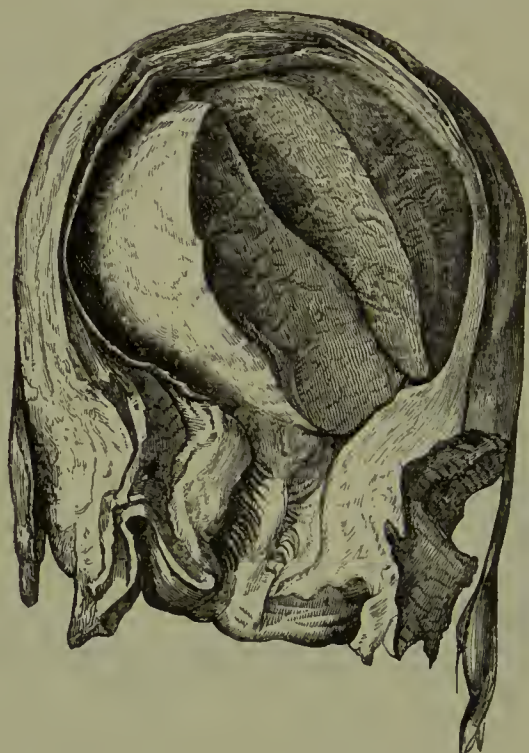
<sup>2</sup> Fig. 173 gives a lateral view of an enormous fibroid growth, from a patient in University College Hospital. The sound could be introduced within the uterine cavity as far as the point to which the lines in the drawing extend.

<sup>3</sup> 'On some Periodical Changes which occur in Fibroid Tumours of the Uterus, and their Significance.' By John Williams, M.D. *Lancet*, May 15, 1880.



in the size of the uterus in cases of fibroid tumour were observed over a considerable time. The tumours were all of considerable size. Considerable variations were found to take place.

The tumour was in each case lodged in the uterine wall. In all the cases there was profuse hæmorrhage. The variations in size amounted to over one inch in vertical measurement, and in one case the transverse measurement varied two inches. The uterus was found to decrease in size immediately after the menstrual period began. The increase in size was noted to occur as early as one week after menstruation, and was found to be pro-

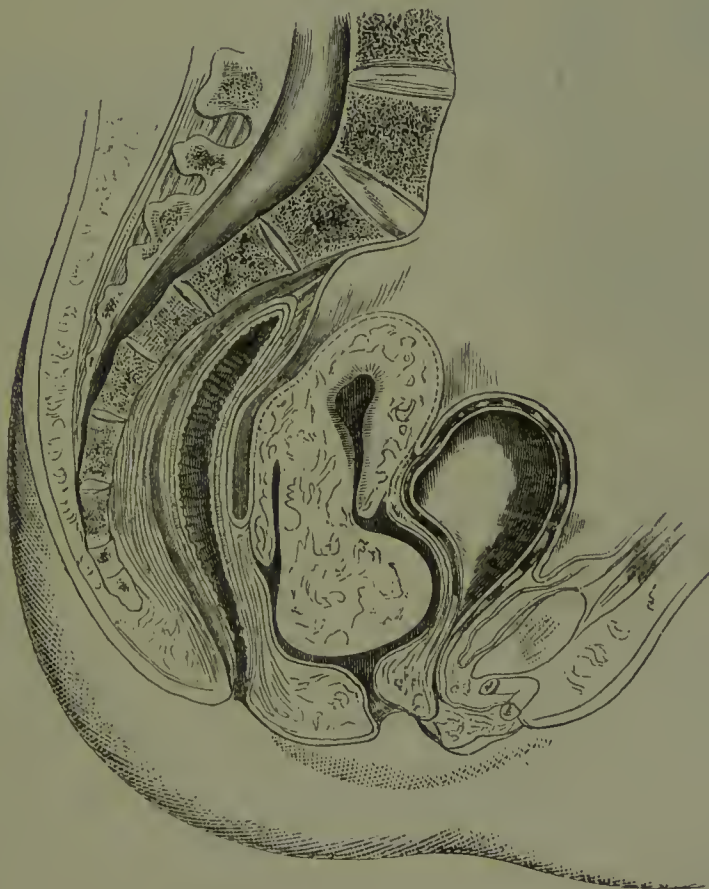
FIG. 174.<sup>1</sup>

gressive afterwards. The decrease was equally great whether the flow was profuse or not. Dr. Williams considers that the decrease was due to contractions of the uterus and tumour, these contractions resulting in expulsion of the blood into the plexuses of the pelvis, the vessels of the broad ligament, and the decidua, giving rise to the appearance of congestion, and which has been described as present during, and the cause of, menstruation.

Fibroid growths of the uterus sometimes undergo a *cretaceous transformation*, becoming smaller in bulk at the same time. Another change occasionally observed is the *cystic transformation*. Thus a fibrous polypus may become changed, after remaining in

<sup>1</sup> Fig. 174, from a preparation in University College Museum. A sub-mucous fibroid tumour, polypoidal in character.

utero some time, into a cyst-like body, each cyst containing fatty *débris*. Here the 'cysts' probably represent the centres of development of the original fibroid tumour. Of this I have related a case. The so-called 'fatty polypi' of the uterus are instances of the same kind. The cystic transformation does not appear to affect parietal fibroid tumours, but we have some very important instances of it in that tumour which is now and then found external to the uterus—the fibro-cystic tumour of the

FIG. 175.<sup>1</sup>

uterus. A careful examination of the facts recorded leads to the conclusion that these fibro-cystic tumours, which in many particulars so much resemble ovarian cystic tumours, are primarily fibroid tumours, either sub-peritoneal uterine fibroids, or sub-peritoneal peri-uterine fibroids (see *ante*, p. 609). The importance of these rare tumours is great, inasmuch as they have been mistaken for ovarian tumours. Hence the interest of this cystic transformation. Paget<sup>2</sup> remarks on this subject, that the forma-

<sup>1</sup> Fig. 175 represents a fibrous polypus projecting from the uterus into the vagina: operated on in University College Hospital.

<sup>2</sup> *Surgical Pathology*, vol. ii. p. 137, 1st ed.

tion of cysts in fibrous tumours is not rare, especially if they be more than usually loose-textured; that the cyst formation may be due to a local softening and liquefaction of part of the tumour, with effusion of fluid in the affected part, or to an accumulation of fluid in the interspaces of the intersecting bands; and he accounts thus for the formation of the roughly bounded cavities which may be found in uterine tumours.

FIG. 176.<sup>1</sup>

CASE I. The following case of fibro-cystic tumour of the uterus is related by Mr. Spencer Wells.<sup>2</sup> The patient was single, æt. 53; there was an irregular, obscurely fluctuating tumour in the abdomen, menstruation latterly scanty, abdomen increased in size from 1853 to 1863, when an operation was undertaken. The tumour was closely adherent to the right iliac fossa, connected with the uterus by a thick band; it was a fibro-cystic growth from the right side of the fundus; its solid portion weighed 16 lbs., and from a large cyst within it 26 pints of fluid and 4 lbs. of lumpy masses of decomposed fibrin were removed. The uterus was twice its natural size, the os was situated high up, and behind the tumour.

CASE II. A second very interesting case is also recorded by Mr. Spencer Wells.<sup>3</sup> The lady, æt. 45, was operated upon as for ovariectomy. Ten years before, two tumours the size of a goose egg had been detected by Dr. Stokes, one central, a little above the umbilicus, the other under the anterior superior spinous process of the ilium. At the time of the operation there was above much ascitic fluid, below what appeared to be a multilocular cyst. The tumour was found to consist of two parts: the left, which was removed, was attached to the uterus, and to the other part, which was not removed. The removed portion measured 18 inches by 12, and was 7 inches thick, weighed 20 lbs., in addition to 12 pints of bloody serum removed during operation. It was composed of fibrous tissue split up by little cavities containing serum. In some parts were

<sup>1</sup> Fig. 176 represents the microscopical structure of an ordinary fibrous polypus: A the harder central, and B the softer external layers.

<sup>2</sup> *On Diseases of the Ovaries*, vol. i. p. 354.

<sup>3</sup> *Op. cit.* p. 356.



little masses like fibroid tumours—these in process of fatty and calcareous transformation. In others cysts with blood contents, one of which was the size of an adult head, divided into several compartments. The second tumour, removed after death, measured 18 inches by 16, and 7 inches thick, attached by a pedicle  $3\frac{1}{2}$  inches long and 2 broad, which pedicle was itself hollowed into cysts. In it was one large cyst 12 inches in diameter. The uterus was a narrow tube 7 inches long.

CASE III. In a case operated on by Mr. Baker Brown in 1862, the age of the patient was 36. Enlargement of the abdomen for six years. The tumour could not be removed. The specimen, removed after death, was exhibited at the Pathological Society, and reported on by Mr. Holmes and Mr. Nunn.<sup>1</sup> The fundus of the uterus was directly continuous with the substance of the tumour, the solid part of the tumour separated into two parts near the uterus by interposition of large cysts. The mass of the tumour was situated in the sub-peritoneal tissue, and adhered above to the omentum, in the tissue of which some fibrous nodules were to be seen. . . . 'The great tumour was made up of a mass of nodules or rounded tumours of a fibrous appearance and consistence, separated from each other by large cysts, in many of which a purulent fluid was still contained. The tissue of the tumours resembled under the microscope the ordinary fibroid tumours of the uterus, but many of them contained cysts of various sizes, and in almost all some very small spaces, which seemed the commencement of such cysts, could be seen. The reporters considered it to be a specimen of fibro-cystic tumour attached to and incorporated with the fundus uteri, but probably originating in the sub-peritoneal tissue in its neighbourhood.

A review of the facts relating to these fibro-cystic tumours renders it probable that the cavities in them are hardly cystic in the true sense of the word at all. They appear to be often formed by the breaking up or softening of parts of the tumour by hæmorrhage within it, by formation of puriform material, and other changes of a destructive character. Further, these tumours appear always to have a very chronic course, a fact which should be of great service in their diagnosis from ovarian tumours.

*Recurrent fibrous polypus. Sarcoma of the uterus.*—This designation is applied to a very rare affection. It is a growth proceeding from the inner wall of the uterus, and projecting downwards through the os in the manner of ordinary fibrous polypus, but differing from ordinary polypus in that a new tumour is liable to grow soon after the old one is removed.

*Case of 'recurrent fibroid tumour' (Dr. West).<sup>2</sup>*—A polypus the size

<sup>1</sup> *Trans. of Path. Soc.* vol. xiv. p. 199.

<sup>2</sup> *Diseases of Women*, 2nd ed. p. 333. For a particular account of the *post-mortem* appearances in this case, drawn up by Mr. Callender, see *Trans. of the Path. Soc.* vol. ix. p. 327.

of a pigeon's egg was found protruding from the os uteri. Portions of it were torn away by repeated operations, nine of which were performed in the course of a year and a half, but the growth always recurred, and, after having been six years under observation, the patient died. Her age was 22 when first seen; after death a large tumour was found in the abdomen, like that in the uterine, and continuous through the uterine wall with it. Similar tumours were found in the lungs, in the pericardium, and in the body of the sixth cervical vertebra. The tumours were all alike, composed of oat-shaped cells, mingled with others of a flattened fibroid form. The tumours were lobulated, divided by septa; they were soft and elastic. The tumour within the uterus grew from a broad base.

*Case related by Mr. Hutchinson.*<sup>1</sup>—There was a recurrent fibroid tumour of the uterus, assuming a polypoid shape, in a woman, æt. 39, the history of which extended over a period of three years, at the end of which time the case ended fatally. The growth was polypoid in shape, soft, and lacerable, and attempts to remove it entirely failed from this circumstance. It was three times partially removed, growing again after each operation. The growth was attached by a broad base to the whole of the fundus and posterior uterine wall. It was soft, lobulated, of a grey-white colour, and readily tore up into fibrils, all of which had a parallel arrangement. Nuclei and numerous small cells were seen. The tumour, very distinct from ordinary fibrous tumours of the uterus, presented no resemblance to epithelial or scirrhus cancer. There were no secondary deposits in this case.

The tumours in both these cases appear to have been identical with those found in other parts and known as recurring fibrous tumours. In both instances there were severe floodings, offensive discharges, and other symptoms present in bad cases of polypus uteri.

(Further remarks on the subject will be found in the chapter on 'Cancer.')

The *symptoms* produced by the presence of fibroid growths of the uterus vary excessively. Hæmorrhage is frequent when fibrous polypus is present, less so in the parietal form, least so in the sub-peritoneal tumour. Watery discharges, sanious, or even offensive discharges attend polypi, but not other cases, as a rule. Pain is usually observed in all varieties of cases. In some cases the suffering experienced is most intense in degree. The degree of pain is in no way related to the size of the tumour, for very large tumours may give comparatively little uneasiness. Menstruation is generally disturbed. In some cases very severe dysmenorrhœa results. The mechanical results are difficulties in micturition, in defæcation,

<sup>1</sup> *Trans. of the Path. Soc.* vol. viii. p. 287.

prolapsus of the uterus, pressure on the veins in the pelvis, and consequent œdema, pressure on the nerves giving rise to pain or numbness extending usually down one of the thighs, &c. These mechanical disturbances vary in kind and degree as the tumour is large or small, and according to its shape and position. It may be so placed and so large as to actually block up the pelvis, the functions of the rectum and bladder being then so seriously interfered with that death results.

#### CERTAIN OTHER VARIETIES OF UTERINE POLYPUS.

Certain growths from the interior of the uterus which now and then assume the characters of polypi must here be mentioned. One of these is the *glandular polypus*. It is an hypertrophy of the mucous lining of the uterus, containing canals or channels, which appear to be the uterine glands enlarged. Dr. Oldham's 'channel polypi' seem to belong to this category. Mr. Wood<sup>1</sup> exhibited a specimen at the Pathological Society having the size of a small walnut, a broad base growing from the fundus. It was soft, very vascular, and there were seen numerous tubes or canals travelling through the substance and connected by strong processes of fibrous tissue. This specimen will serve as a type of the class. They are not common. The so-called 'fungous' growths now and then found in the uterus are in most cases simply the result of congestive hypertrophy of the mucous membrane (see p. 109).

Next we have *mucous polypi*, as they have been termed, consisting of enlarged mucous follicles from the cervical cavity of the uterus, attached generally by a long pedicle, and hanging down in the vaginal canal. Their size varies from a barleycorn to that of a walnut.

These smaller polypi may occasion hæmorrhages and other inconveniences apparently disproportionate to their size.

#### DIAGNOSIS.

The diagnosis of the existence of the various forms of fibroid growths of the uterus is only to be satisfactorily made by investigating the condition of the uterus physically. The digital examination of the uterus from the vagina is of great service in this respect. The finger, aided by the sound, in this way enables us to estimate very accurately the general relations of fibroid tumours

<sup>1</sup> *Trans. of the Path. Soc.* vol. x. p. 206.



when not of great size. The existence of polypi is ascertained in the same way, it being now and then necessary also to dilate the os uteri, to gain access to these polypoidal growths.

The examination of the abdomen by the touch is always required to determine the relations of the larger varieties, and the conjoint examination by one finger in the vagina and the other hand laid on the abdomen is frequently a great aid to the diagnosis.

It will thus be seen that when the case before us dates back for any considerable time, the diagnosis, up to a certain point, is comparatively easy; the firmness and density of the tumour being peculiar and characteristic. The slow growth of the tumour and its firmness and solidity separate it from the ordinary forms of ovarian tumour, but there are some forms of ovarian tumour with which it may more readily be confounded. In cancerous enlargement of the uterus the progress is less chronic than in fibrous tumour; moreover, cancer is often present in other organs also. There are other considerations which are equally significant in the diagnosis of fibrous growths. When the fibrous growths are external to the cavity of the uterus, the symptoms are often very slight, and the general health of the patient may be unaffected, unless the shape or position of the tumour be such as to mechanically interfere with the evacuation of the bladder or of the rectum. In the early stage of the growth of such tumours there may be, however, mechanical derangements, these being entirely absent at a later period when the tumour has risen out of the pelvis into the abdomen. If, on the other hand, the uterus be enlarged *together with* the tumour, as it necessarily is when the tumour is enclosed within it, the symptoms are almost always more severe and such as to attract attention at an early period. Profuse menstruation, hæmorrhages, serous discharges, more or less constant pains, and discomfort of various kinds, which by their association and long continuance not rarely reduce the patient to a very low debilitated state, are present under such circumstances; and a slow-growing, hard, symmetrical tumour, felt above the pubes in a patient with symptoms such as those described, generally proves to be a large polypus of the uterus. The only condition capable of closely simulating this condition is internal cancer of the uterus—a very rare disease, and one which might be expected to have a less chronic course than fibrous polypus. The state of the lower segment of the uterus affords valuable diagnostic information in cases of hard uterine enlargement. When a polypus is present, the examination of the os, and through this opening of the interior

of the uterus by means of the uterine sound, generally gives conclusive information on this point. Slight consideration will be sufficient to show that between fibrous tumours situate in the wall of the uterus, but partly projecting into the cavity, and fibrous polypi, the diagnostic signs would not be very decided. The symptoms presented by the patient give, however, some material assistance. Thus, as observed by Scanzoni, in the case of fibrous tumours growing near the cavity, but interstitial in character, the pains experienced by the patient are generally more severe than when there is a polypus present, while, at the same time, the amount of hæmorrhagic loss is generally much less considerable in the former than in the latter case.

A hard, firm, resisting, well-defined tumour, involving the uterus, reaching as far as or beyond the umbilicus, which has been growing for three or more years, will, if uniform and symmetrical in shape, probably prove to be a fibrous polypus of the uterus, but if there be a want of symmetry about the tumour we have probably to do with a fibrous growth which is not within the uterine cavity. More generally we are able to recognise this latter fact at once, judging by the unevenness of the surface of the tumour felt through the abdominal parietes, while in other cases it is still more evident from the circumstance that the fingers recognise the presence of rounded, knob-like masses, which are fibrous tumours growing from the exterior of the uterus. Sometimes these growths are pedunculated, and then they are movable to an extent varying with the length of the pedicle.

The solid tumours of the ovaries may, under certain circumstances, present physical signs very closely resembling those present in the case of fibrous tumours of the uterus, has been just observed. The greatest amount of difficulty is in deciding between a tolerably large fibrous tumour pedunculated, and to a certain extent movable independently of the uterus, and some solid tumours of the ovary, both being chronic in their course, while the physical inconveniences produced may be identical in the two cases. I recollect seeing an enormous fibroid tumour which had been removed from the abdomen by Mr. Spencer Wells, and to the touch exactly resembled a semi-fluctuating ovarian tumour.<sup>1</sup> I have myself removed a very large fibroid tumour, the history connected with which suggested the idea of an ovarian tumour previous to the operation. The diagnosis of ovarian tumours, of

<sup>1</sup> Described in *Obst. Trans.* vol. xi. p. 73.

which the contents are chiefly fluid, from fibrous tumours of the uterus, is more easy, the presence of fluctuation and other characters giving important diagnostic criteria. (See 'Ovarian Tumours.')

The following is a tabular statement of cases of fibroid tumour and polypus observed by me at University College Hospital in a period of a little over four years. It will serve to exhibit the more essential particulars connected with the clinical history of these diseases. Of the total number of 96 it will be found that 72 were instances of fibroid tumour and 14 of polypus. Of the women who were married, 78 in number, 30 were sterile. It will be observed that in so many as 8 the disease was observed before the age of 26.

### FIBROID TUMOURS AND FIBROUS POLYPI.

(*University College Hospital, 1866-9.*)

Age.	Initials.	Married or Single.	No. of Children	Remarks.
17	A. H.	S.	0	Fibroid tumour in front and to right of uterus.
20	J. G.	M.	1	Fibroid tumour left side of uterus.
20	E. G.	S.		Small mucous polypus of os uteri.
22	E. D.	M.	0	Tumour behind uterus size of egg.
22	B.	M.	1	Fibroid tumour in anterior wall (? anteversion).
23	C.	M.	0	2 miscarriages. Fibroid tumour.
24	A. C.	S.		Fibroid tumour, size egg, in left side of uterus. Dysmenorrhœa.
25	L. D.	M.	2	Fibroid tumour, size pigeon's egg, to front and right of uterus.
26	L. D.	M.	0	Fibroid tumour, size small orange, in anterior wall of uterus.
26	M. M.	M.	0	Married 5 years. Large fibroid tumour on left anterior side of uterus. (Injection with acetic acid.)
27	E. A.	S.		Fibroid tumour, size small foetal head, right side of abdomen.
27	A. T.	S.		Large fibroid tumour. (Incision of cervix.)
27	M. A. G.	M.	1	Fibroid tumour at back of uterus.
27	E. S.	M.	0	Fibroid tumour, size of orange, in anterior wall of uterus.
28	E. L.	M.	4	Fibroid tumour behind uterus, size Maltese orange. Last child three years ago.
30	M. A. H.	M.	1	Child 5 years old. Fibroid tumour on right side of uterus.
30	S. H.	M.	1	Fibroid tumour on posterior aspect of uterus.
30	E. P.	M.	0	Married 11 years. Fibroid tumour of uterus, size of fist.
30	J. O.	M.	7	Fibroid tumour to left of uterus, size of small egg. Uterus or bladder prolapsed.
30	E. D.	M.	0	Married 4 years. Fibroid tumour in front of cervix, size filbert.
30	A. F.	M.	1	Child 10 years old. Fibroid tumour in anterior right wall of uterus. Cavity of uterus $\frac{3}{4}$ inch too long.



FIBROID TUMOURS AND FIBROID POLYPI *continued.*

Age.	Initials.	Married or Single.	No. of Children.	Remarks.
30	D. W.	S.		Fibroid tumour, size orange, to right of uterus.
31	E. N.	M.	1	Child 2 years old. Large hard tumour, 6 inches in diameter, on right side of abdomen, apparently uterine. Sound goes in behind it.
31	M. A. S.	M.	0	Very hard tumour behind uterus, size of fist, continuous with uterus. Tumour also above pubes half way to umbilicus.
31	M. B.	S.		Uterus enlarged, anteriorly and to right. Ambiguous swelling also behind it.
32	J. W.	M.	1	Child 15 years old. Two rounded fibroid tumours, one in front and one to left of uterus, connected together. Uterus pressed downwards and retroflexed.
32	S. R.	M.	0	Married 9 years. Small fibroid tumour to right of uterus.
32	C.	M.	0	Married 4 years. Large fibroid tumour, size foetal head, in front of uterus. Sound enters 3 inches.
33	E. W.	M.	5	Last child 6 years old. Fibroid tumour, anterior wall.
33	S. K.	M.	2	Last child 9 years old. Fibroid tumour to right side of uterus.
33	A. H.	M.	0	Married 9 years. Tumour, size pigeon's egg, in right latero-anterior wall. Treated by incision of cervix internally, and use of stem pessary. Pregnancy followed end of 1869.
34	E. M.	M.	7	Last child 1½ year. Has passed an egg-shaped hard substance, probably fibroid polypus.
34	C. T.	S.		Enormous fibroid tumour.
35	M. A. T.			Fibroid tumour.
35	A. B.	M.	0	Fibroid tumour right side of uterus.
35	E. R.	M.	7	Retroflexion of uterus, and a soft flattish tumour behind it.
35	L. N.	M.	6	Polypus attached to cervix. Operation.
35	S. B.	M.	8	(?) Fibroid tumour in anterior wall.
35	E. B.	S.		Polypus. Operation by scissors.
35	E. C.	M.	1	Child aged 16. Fibroid tumour growing from back of uterus at junction of cervix and body, size pigeon's egg, flattened.
35	E. M.	M.	0	Fibroid tumours, anterior and posterior to uterus.
36	J. W.	M.	0	Fibroid tumour right side of uterus.
36	M. A. E.	M.	0	Fibroid tumour externally. Signs of disintegration of uterine polypus.
36	E. L.	M.	4	Fibroid tumour growing from back of uterus low down. Last child 2½ years old.
36	E. M.	M.	3	Last child 10 years old. Fibroid tumour to right of uterus (?)
36	A. G.	M.	0	Married 20 years. General enlargement of uterus, but especially on right side. Cervix also large. Vaginal hyperæsthesia.
36	E. L.	M.	4	Also 5 miscarriages, last 9 years ago. Fibroid tumour right side, size egg. Membranous menstruation and dysmenorrhœa.
36	A.	M.	3	Fibroid tumour on right side and front of uterus.
	J. B.	M.	3	Also 5 miscarriages. Says has had fibroid tumour removed. Uterus still large.
37	A. W.	M.	0	Large fibroid tumour 8 inches oblique vertical diameter. Lies most to right side. Os uteri drawn up.

FIBROID TUMOURS AND FIBROUS POLYPI—*continued.*

Age.	Initials.	Married or Single.	No. of Children.	Remarks.
37	S. C.	M.	0	1 miscarriage 18 years ago. Fibroid tumour, size orange, right side of uterus.
37	W.	M.	3	Last child 3½ years old. Fibroid tumour to right of uterus, pendulous.
37	C.	M.	2	Last child 20 years old. Fibroid tumour to left of uterus.
37	M.	M.	0	Polypoid fibroid tumour, size of fist. Patient died of pyæmia following dilatation of cervix uteri.
38	S. S.	M.	0	Married 16 years. Fibroid tumour size of gravid uterus at 6 months. Sound passes a little to left, and in front of it.
39	C. P.	M.	7	Nodular enlargement to right front of uterus.
39	E. A.	M.	3	Last child 10 years old. Fibroid tumour back of uterus, size of an egg.
40	A. C.	M.	0	Married 4 years. Fibroid tumour behind uterus, size hen's egg.
40	M. W.	M.	0	Large fibroid tumour posterior to uterus. Incised freely.
40	M. D.	M.	0	Very large fibroid tumour of uterus.
40	M. W.	M.	0	Married 18 years. Fibroid tumour, size orange, behind uterus. Retroversion of uterus also.
40	E. F.	M.	0	Married 18 years. Fibroid tumour, size foetal head, round, movable, small pedicle.
40	E. D.	S.		Two large fibroid tumours, anterior part of uterus.
40	C. L.	M.	1	Child 15 years old. Fibroid tumour, size 1½ inch in diameter behind uterus. Sound passes to left.
40	E. C.	S.	0	Large fibroid tumour.
41	D.	M.		Soft polypus, breaking down (?), clots, &c.
42	E. W.	S.		Large fibroid tumour. (In-Patient.)
42	C. B.	M.	1	Fibroid tumour behind uterus, size of fist. Retroflexion also. Child many years ago.
42	C. S.	M.	2	Last child 16 years. Fibroid tumour back of uterus.
42	E. M.	M.	2	Last child 15 years. Polypus. Operation.
42	C. T.	M.	0	Considerable fibroid tumour to right of uterus.
43	F. Y.	M.	1	Last child 22 years old. 1 miscarriage 5 years after. Fibroid polypus or fibroid tumour. Sound, 4 inches.
43	M. A. F.	M.	3	Last child 20 years old. Fibroid tumour, size foetal head. Uterus also enlarged to left side low down.
44	S. C.	S.		Enormous fibroid tumour, size adult's head, in 3 portions.
44	E. E.	S.		Aggregation of 3 or more large fibroid tumours, altogether exceeding size of foetal head.
44	C. L.	M.	2	Last child 10 months old. Small fibroid tumour in anterior wall of cervix.
45	C. M.			Polypus, size of filbert.
45	S. D.	M.	1	Also 5 miscarriages. Polypus. Removed by Écraseur.
46	E. F.	M.	1	Enormous fibroid tumour extending to 3 inches above umbilicus. 8 inches in transverse diameter. Appears to originate in posterior wall of uterus. Sound passes 4½ inches in front of tumour.
46	S. R.	S.		Fibroid tumour size of adult head.
46	B.	M.	0	Married 17 years. Fibroid tumour to left of uterus.
47	E. D.	M.	0	Pelvis filled posteriorly with fibroid enlargement of uterus, growing also upwards to a little above umbilicus.

FIBROID TUMOURS AND FIBROUS POLYPI—*continued.*

Age.	Initial.	Married or Single.	No. of Children.	Remarks.
48	E. M.	M.	7	Last child 6 years. Mucous polypus. Operation.
48	C. J.	S.		Small polypus.
48	S.	M.	0	Fibroid enlargement of anterior part of cervix.
48	E. M.	S.		Large fibroid tumour, size of head. (At one time thought to be ovarian.)
49	R. G.	M.	2	Last child 10 years. Large fibroid tumour, size head. Partly in pelvis.
49	M. A. M.	M.	9	Polypus. Operation.
49	M. B.	M.	9	Fibroid tumour, size nut, in front of cervix.
49	J. R.	M.	4	Fibroid tumour, size orange, back of uterus.
50	J. D.	M.	0	Fibroid tumour, size orange, at back of uterus. Prolapsus of the uterus and tumour externally. Uterine canal almost closed.
50	A. S.	M.		Large fibroid tumour as high as umbilicus.
50	E. S.	M.	0	Large fibroid tumour filling pelvis.
50	M. C.	M.	9	Polypus. Removed by seissors.
50	C.	M.	6	Polypus, size pigeon's egg. Operation.
50	F. D.	M.	12	Polypus, size of apple. Operation.
58	M. S.	M.	5	
64	J. N.	M.	7	Fibroid tumour behind uterus.

## ETIOLOGY.

No considerable degree of light has been thrown on the question as to the cause of the formation of fibroid growths in the uterine tissues. Although various theories have been put forward to account for their production, these theories are unsupported by facts of a reliable character.

These fibroid growths may be considered to be parts of the uterine tissues which have become isolated in some way from the uterus as a whole, and which take on a quasi-independent mode of growth, being subject, as regards their growth, to certain laws different from those which they obeyed previous to their isolation.

It seems probable that there may be some influence at work acting prejudicially on the nutrition changes in the uterus and leading to the formation of these growths. They certainly have appeared to me to be more liable to be observed in individuals whose general health was in a defective state, and in whom, consequently, the nutrition changes in the body generally were and had been habitually moving slowly, languidly, and imperfectly. General weakness implies local weakness, and I have come to the conclusion that the formation of fibroid tumours in the uterus is connected with defective nutritional vigour of the uterus as a whole.



The foregoing explanation was suggested to me in consequence of my having read, some little time since, papers by Dr. Salisbury of Cleveland, Ohio, and Dr. Ephraim Cutter, advocating the administration of a diet largely composed of meat in the treatment of cases of fibroid tumour of the uterus, and from the success which in certain well-marked cases under my own observation had followed the adoption of this plan of treatment. (See later on for remarks on 'Treatment.')

#### TREATMENT.

The danger to life consequent on the presence of fibroid growths in or about the uterus varies very much in different cases, and is connected almost entirely with the severity and intensity of the secondary symptoms. The most considerable source of danger lies in the oft-repeated hæmorrhages, the chronic menorrhagia, leucorrhœa, etc., present in bad cases, and in the exhausting effects of these on the constitution of the patient. In themselves these tumours are almost innocuous, but they may, when large, mechanically interfere with important functions of the body, and in that way bring about a fatal result. In one case where the tumour was of considerable size the irritation of its presence occasioned enormous accumulations of ascetic fluid in the abdomen, which, by its pressure, threatened life. Hence the indications for treatment vary in different cases.

The removal of the tumour should be effected whenever the circumstances are such as to render the removal safe for the patient. Very frequently the tumour can only be extirpated at great risk, and in other cases the connections of the growth with the uterus are such that nothing less than the removal of the entire uterus will accomplish its complete eradication.

The most simple case is that in which there is a fibrous polypus pendulous in the vagina or projecting at the vulva, attached by a pedicle to the interior of the uterus. The only proper treatment in cases of this kind is removal of the polypus. A whipcord ligature was formerly employed for the purpose of cutting through the pedicle of the polypus, the loop being passed round the pedicle and tightened by means of the well-known apparatus of Dr. Gooch. The pressure of the ligature caused the separation of the tumour in a few days, or longer when the pedicle was of considerable thickness. This method of procedure is now almost fallen into disuse. The knife, the scissors, or the *écraseur* armed with the chain, the wire rope, or a strong wire, are now most largely

employed. It has been found that when the knife or scissors are used the hæmorrhage is either very trifling or very easily controllable; and by the use of the *écraseur* the liability to hæmorrhage is reduced almost to *nil*. The old plan is vastly inferior to the knife, scissors, or *écraseur*; for, unless the pedicle be very small, the whipcord ligature does not cut it through in less than two or three days, during which time the patient is subjected to the great inconvenience of having a semi-putrid mass lying in the vagina, and to the great danger of putrid absorption and consequent pyæmia. It is undoubtedly a matter of great importance to complete the removal of the polypus at once in all cases where it is found feasible.

In the choice of the particular instrument we must be guided by the circumstances of the case. In the case of a polypus with a pedicle the size of a shaft of a feather, it is quite immaterial whether we use the curved scissors, the polyp tome (a long hook, the concave side of which has a cutting edge), or the *écraseur* armed with chain, or wire, or wire rope. Each operator will choose the instrument with the manipulation of which he is best acquainted. There is necessarily more danger of injuring the vagina when the scissors or the knife are used, but even this depends rather on the operator than the instrument. When the pedicle is larger than that above stated, the *écraseur* armed with chain, or wire rope, is the best instrument, inasmuch as thus the operation is more easily effected, and there is less liability to bleeding. This latter method of cutting across the pedicle is applicable also in cases where the scissors or knife could not possibly be used owing to the position of the pedicle. The chain *écraseur* is applied with difficulty when the pedicle is thick, and here the wire, or wire rope (as used in Dr. Braxton Hicks's instrument), is most valuable. The size of the rope must be increased in proportion to the thickness of the pedicle. A modification of Gooch's apparatus, made extremely strong, and capable of being used with any size of the wire, or wire rope, is made by Messrs. Weiss, and has proved very useful in cases of polypus with a very thick pedicle. Dr. Braxton Hicks's instrument has been found effective in many such cases. Meyer's instrument (see fig. 140), in which a very strong pianoforte wire is employed, is exceedingly good, and I have used it successfully in numerous cases. I have employed the *écraseur* with chain, and also with strands of wire, and the scissors, for the removal of fibrous polypi. If the pedicle is small, the scissors answer every purpose,

but if it is thick the *écraseur* is to be preferred. In the case of a large polypus projecting through the os uteri into the vagina, we may, it must be recollected, have to deal with a partially inverted uterus as well as the polypus. The following case illustrates this point:—

A tumour was exhibited by Dr. J. Ogle at the Pathological Society, sent to him by Dr. Slater of Halifax, Nova Scotia. Dr. Slater had removed it by means of the *écraseur*, and the patient is said to have made a very good recovery. The tumour was referred to Dr. Ogle, Dr. Marion Sims, and myself for a report, the substance of which was as follows: <sup>1</sup> ‘The tumour has the shape of a melon; it is  $4\frac{1}{2}$  inches in diameter,  $2\frac{1}{2}$  in thickness. On one aspect is a surface 1 inch long, ovoid in shape, slightly depressed, and perfectly smooth. This surface was evidently a part of the peritoneal surface of the uterus. The tumour consists of a polypus growing centrally from the interior of the uterus. In separating the tumour, the *écraseur* had cut away the portion of the uterus with which the polypus was connected, which portion formed, in fact, this pedicle of the tumour.’

This case is a very unusual one, and indicates the propriety of measuring the cavity of the uterus before cutting through what may appear to be the pedicle. A somewhat similar case is depicted in fig. 130.

The manipulations necessary to remove a polypus of the more ordinary form require a word or two. I have found the best method is to pass a piece of stout whipcord round the pedicle, to slightly tighten this, and then to drag upon it. This brings the neck of the polypus lower down and better within reach, supposing the scissors or any other cutting instrument to be used. A strong vulsellum forceps answers the same purpose, but not quite so efficiently.

In rare instances uterine fibrous polypi attain an enormous size before they are expelled from the uterine cavity into the vagina; and in such cases, although the tumour is in the vagina, the mere size of the tumour creates a difficulty in reaching the neck of the polypus. Under these circumstances it has been found necessary to remove the tumour piecemeal; to cut away or remove as much of the tumour as can be reached at one operation, and to wait until the remainder is expelled lower down before again operating. When the mass is very large, it may be necessary to dilate the vagina by means of a caoutchouc bag filled with water or sponge in order to reach the tumour more readily.

When the polypus has been removed, the patient should be

<sup>1</sup> *Trans. of Path. Soc.* vol. xvi. p. 211.



kept quiet for a few days, and in most cases it is advisable to give an opiate after the operation. Should hæmorrhage occur after the operation, it will be easily controllable by carefully plugging the vagina.

The next cases we have to consider are those in which the fibrous growth is attached to the interior of the uterus by a pedicle, the growth itself, however, remaining still within the uterus. The os uteri may be found small or tolerably widely open. To Sir J. Y. Simpson is due the merit not only of first pointing out how the diagnosis is to be made where the os is found closed—viz. by artificial dilatation of the os uteri—but also of first practising the operation of removal of polypi from the interior of the uterus under these circumstances.<sup>2</sup> The thickness of the pedicle of the polypus may vary; the size of the growth itself also may vary; but as a rule we do not find that very large polypi attached by a narrow pedicle remain long within the uterine cavity; the more usual circumstance being that the os gradually expands and allows the tumour to fall wholly or in part beyond the os uteri. Where the pedicle is narrow, the operation for the removal of such polypi is not difficult, but it is more difficult than when the polypus is lying in the vagina. The removal of a polypus from within the uterus is quite feasible, and it is, in most cases, a proper operation. We may judge roughly of the thickness of the pedicle by endeavouring to twist the growth on its axis. Torsion has been employed in a very few of these cases, but the pedicle is rarely so small as to allow of its being attempted successfully. Knives of various forms have been contrived to cut across the pedicle; such is the polypsome of Professor Simpson—a hook with a knife in the concavity—or the polyptrite of Dr. Aveling (fig. 177), which is a modification of Simpson's. The instrument is introduced through the os, the pedicle embraced, and thus cut through. Curved scissors may be also employed, but the manipulations necessary are not very easy to perform if the os be narrow or unyielding. The wire or the wire rope is best adapted for cutting across the pedicle, the only difficulty being the placing of the rope on the neck of the tumour. In

FIG. 177.<sup>1</sup>

<sup>1</sup> Fig. 177 represents Dr. Aveling's polyptrite.

<sup>2</sup> Original edition of *Obst. Works*, vol. i. p. 128.

order to enable us to perform the necessary manipulations, the os frequently requires to be artificially dilated. Dr. Lombe Atthill<sup>1</sup> describes and figures a very nicely-conceived method of dilating the cervix in such cases—viz. by the conjoined use of a bundle of tangle tents, by means of which the cervix can be rapidly dilated and the necessary operative procedures within the cavity of the organ facilitated.

Another class of cases are those in which there is a fibrous growth developed in the substance of the cervix uteri, or one lip of the os uteri. These cases are not very common, but the tumour here situate may attain a great size. The treatment of such cases is identical with that applicable in cases of hypertrophy of the cervix uteri (see p. 102).

We next come to the series of cases, respecting the proper treatment of which there is some difference of opinion—viz. those fibrous tumours attached to the uterus by a very broad base, there being a complete absence of anything that can be termed a pedicle. The most manageable of such cases are those in which, although the basis of attachment is broad, yet the tumour itself is of a polypoidal shape. Such a tumour may project partially through the os uteri. The wire-rope écraseur, or the wire ligature, may be used to cut across such a tumour, even when tolerably high up. Various methods of treatment have been practised in cases where there has been no such polypoidal character of the tumour. Amussat incised the os and cervix, and then separated the tumour from the inside of the uterus by a kind of enucleation, or shelling out. This operation, variously modified, has been carried out more recently by others also. Thus Mr. Baker Brown adopted in several cases a procedure<sup>2</sup> for the removal of such tumours based on the supposition that, when these tumours are partially broken up or disintegrated, as by cutting a piece out of the centre, they have a tendency to perish and separate spontaneously. Dr. Gooch was the first to allude to this, for he held that when a ligature was applied round the neck of a polypus, the part above as well as the part below the ligature perished. In some cases, however, the attachment and connection of the tumour with the uterus being considerable, little or no effect would be produced on the remainder by the removal of a part of the tumour.

Dr. Marion Sims<sup>3</sup> has published reports of several difficult

<sup>1</sup> *Lectures on Diseases of Women.*

<sup>2</sup> *Obst. Trans.* vols. i. and iii.

<sup>3</sup> 'On Intra-Uterine Fibroids,' *New York Med. Journ.* April 1874.

operations, and describes some new valuable instruments for aiding in removing intra-uterine fibroids. One of these (fig. 178) he terms a tumour-hook, by means of which the tumour can be firmly seized and dragged downwards. Another (fig. 179) is a strong bent hook with a cutting edge; the stem very strong but of such a material that it can be bent as required. This is a new form of enucleator, and by means of these instruments the tumour is gradually separated from the uterus.

Dr. Washington Atlee says: If hæmorrhage is serious and uncontrollable, the os and cervix must be well dilated so as to get free access. Then establish action of ergot; and when this is done pass in a long probe-pointed bistoury, flatwise, by finger, and carry it till it reaches the upper border of tumour. Uterus is now steadied through abdominal walls by an assistant. The bistoury is then turned, and a bold deep incision made into the tumour by drawing the bistoury downwards. It often happens that if hæmorrhage has existed before this incision it ceases afterwards. After incision, enucleation should be attempted, and will succeed if tumours not too massive. It is better

FIG. 178.<sup>1</sup>FIG. 179.<sup>2</sup>

<sup>1</sup> Fig. 178 shows Sims's tumour tenaculum hook.

<sup>2</sup> Fig. 179 gives two views of Sims's enucleator.

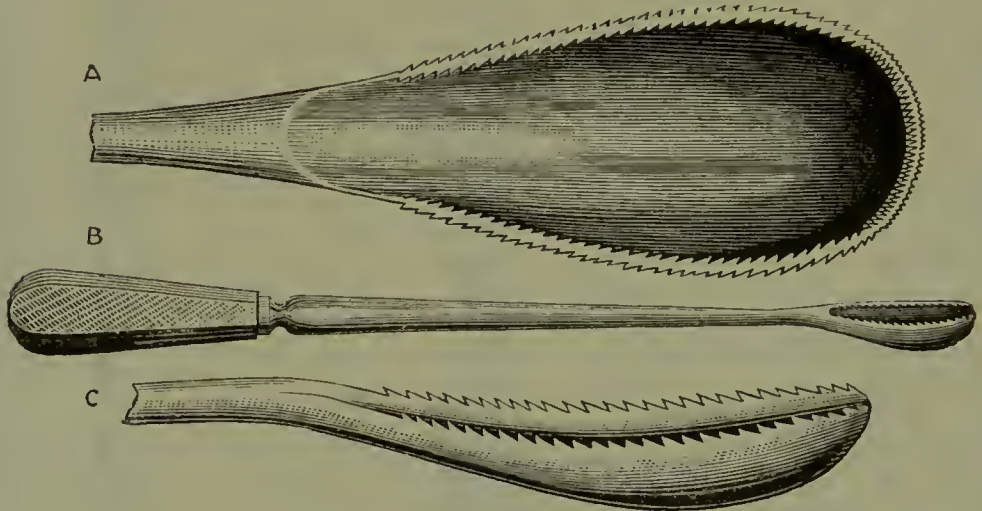


to remove, if possible, at the time. Ergot is to be continued afterwards.

Professor T. Gaillard Thomas<sup>1</sup> describes a new instrument, 'the serrated scoop,' for the detachment of sessile uterine fibroids. When the tumour is a sessile growth not exclusively attached and not pediculated (these two cases requiring other procedures), Dr. Thomas resorts to 'avulsion'; and he offers an instrument, the 'serrated scoop,' to perform this. The cervix having been dilated, a powerful vulsellum forceps is applied, and the serrated scoop is employed to detach the growth. Dr. Thomas reports its action as admirable.

Dr. Emmet<sup>2</sup> finds it very advantageous to use continuous traction half-an-hour or longer during the operation, so as to ensure contraction of uterus as an aid. By traction there is pro-

FIG 180.<sup>3</sup>



duced a gradual pedunculation owing to vigorous muscular contraction of uterus, especially round the base of the fibroid. In two cases weight was seven and four and a-half pounds. When size over a pigeon's egg he controls hæmorrhage and forces tumour out of its bed by frequent use of rectal and intra-uterine suppositories of Squibbs' aqueous extract of ergot (xv.-xx. gr. each). As soon as fibroid projects sufficiently he seizes it with double tenaculum passed up as high on tumour as possible, traction being kept up for as long as one and a-half minute. Hæmorrhage is arrested and uterine contraction excited by hot-water injections, and uterine cavity injected or painted with Churchill's strong tincture of iodine.

<sup>1</sup> *Amer. Journ. of Obst.* vol. x. p. 645.

<sup>2</sup> *Ibid.*, New York Obst. Soc. 1874.

<sup>3</sup> Fig. 180 represents Thomas's serrated scoop.

Oecasionally uterus packed with cotton wool, and glycerine and vagina tamponned; frequent injections of earbolised warm water invariably. Dr. Emmet finds Thomas's scoop very good; he also describes an enucleator of his own, which can be fastened to the tip of the finger.

The enucleation of interstitial or parietal fibroid tumours is not generally practicable from the internal passages, unless the tumour be situated very low down, or in the substance of the cervix. Thus, in a case related by Dr. Whiteford, a fibroid situated in the anterior wall of the uterus near the cervix was cut into after the cervix had been dilated; the tumour itself seized a few days later and dragged downwards and finally removed, the patient recovering. Here the hæmorrhages had been very severe.

All operations on fibrous tumours of the non-polypoidal form and shape are somewhat hazardous; pyæmia, inflammation of the uterus, etc., being always liable to occur. These dangers are often very considerable: the risk of perforating the uterus, the inflammation of the uterus which may be set up, the pyæmic condition liable to arise from the cutting, the tearing, and prolonged manipulations which may be required to carry the operation to a termination,—all these are evils not to be lightly encountered; but the cases reported by various operators show that the operation of removal of large intra-uterine tumours is tolerably safe. It appears to be important to establish a contracting condition of the uterus prior to commencing the operation, and to enucleate and tear away rather than to incise in separating the tumour, and it appears to be advantageous to remove the whole tumour at once when practicable.

*Deep incision of the os and cervix alone* has been oecasionally practised with the view of lessening or arresting the severe and exhausting hæmorrhages sometimes present. The procedure appears to have been first employed simultaneously by Nélaton, Baker Brown, and M'Clintock. The *rationale* of the efficacy of the operation, which really does appear to be of service in some cases, has been variously given. My explanation is, that the hæmorrhage is arrested because no further accumulation of blood in the uterus occurs. When the os is very small blood may collect, form a clot which distends the uterus, and by-and-by induce contraction, and then expulsion. Just as is the case in abortion in the early months, the uterus is thus alternately full of blood and empty. The dilatation of the uterus becoming greater, the blood or clot is got rid of, but again accumulates. When the os is

incised, the blood oozes away readily, there is no accumulation, no stretching of the uterine wall, and hæmorrhage is lessened. The operation does not succeed in arresting the bleeding in all cases; this is not to be expected. An aperture sufficient to admit the forefinger will be found, in my judgment, adequate; but the incision or dilatation must affect the whole of the cervical canal, including the internal os uteri. The canal so enlarged must be well plugged by lint steeped in glycerine and perchloride of iron. This plug will come away in three or four days, and the finger must be occasionally used afterwards to prevent re-closure.

*Removal of fibroid tumours by gastrotomy.*—In some cases gastrotomy has been performed, and the fibroid tumour removed by excision or tearing from the uterus. And in some cases also the whole of the uterus, together with the tumour, has been removed after performance of gastrotomy.

When the tumour is sub-peritoneal it is of course more accessible from the peritoneal cavity than when in any other position. If the tumour is a large flat sessile one, having a very broad connection with the uterus, its separation from the uterus is a matter of some difficulty. When, however, the tumour is pedunculated, the separation from the uterus is much more easy. An operation for the removal of fibroid tumours is therefore more likely to prove feasible and successful in the latter than in the former case.

It is found in practice not very easy always to determine, before the abdomen is opened, how far the tumour admits of easy separation from the uterus. Of late years the removal of fibroid tumours by gastrotomy has been performed in a considerable number of cases with fair success.

In 1878<sup>1</sup> Mr. Spencer Wells stated that in 24 cases he had removed the tumour, 15 patients dying and 9 recovering. In 21 other cases he had not removed the tumour, but had incised the abdomen, and punctured or incised or removed a part of the tumour, and in only 1 of these cases was the death accelerated by the operation, while many were relieved.

In 1880<sup>2</sup> Mr. Spencer Wells stated that in the two years preceding he had operated in 10 other cases, but antiseptically; out of the 10 cases there were 3 deaths and 7 recoveries. There had been also 5 cases of incision and puncture, all of which recovered.

<sup>1</sup> *Brit. Med. Journ.* July 27, 1878.

<sup>2</sup> *Ibid.* Sept. 4, 1880.



A very important element in the question is the apparent safety of what may be termed an exploratory operation. It is admittedly difficult to decide without such exploratory operation whether the tumour can be removed. Mr. Spencer Wells's conclusions, given above, show that this explanatory operation is practically safe. Dr. Thomas Savage, Mr. K. Thornton, and Mr. Lawson Tait may be mentioned as holding substantially this view as to the safety of the necessary exploration. Dr. Thomas Savage<sup>1</sup> was successful in five out of six cases, the ligature being employed in some cases and the clamp in others. The stump may be treated by the clamp, according to Dr. Savage, when it is not very thick and fairly long, while the ligature is best for a short thick stump. His cases were treated antiseptically. The cases most difficult to deal with are those in which the tumour is of the soft variety, and widely attached to the uterus. Hæmorrhage is the principal source of difficulty, not only at the time of the operation, but subsequently; for ligatures do not appear to hold very well on the uterine tissues.

We may next consider the operation of removal of the entire uterus together with the tumour.

Dr. H. R. Storer has collected statistics of the operation of *removal of the whole uterus* with the tumour, relating to 29 cases, including two of his own. The second of Dr. Storer's very interesting papers<sup>2</sup> on the subject gives the following results: Of the 29 cases, 22 died. The first operation included in the series was one of Dr. Clay's, in the year 1843; the last by Dr. Storer, in 1866. The deaths were due in 6 cases to hæmorrhage, in 8 to shock, in 7 to peritonitis or inflammation; 1 (on the thirteenth day after operation) was the result of accident. The operators were thirteen in number.

The first case performed successfully in this country was that by Dr. Clay of Manchester (included in Dr. Storer's series). The case was that of a single lady: the tumour had been growing for some years, and for the last three or four years it had been growing in such a way as to fill up the pelvic cavity. Finally, the patient had become much emaciated, the tumour filled the pelvis so entirely that the finger could not be passed behind it, and there was not even room for the introduction of a bougie in front; and it being evident that life must be brought to an end by the

<sup>1</sup> The Treatment of Uterine Myoma by Abdominal Section. Birmingham, 1879.

<sup>2</sup> *Amer. Journ. of Med. Soc.* Jan. 1866, and *Trans. of Amer. Med. As.* vol. xvii. 1866.

impediment offered to defæcation and micturition, it was determined to remove the tumour. The entire mass, including the uterus and one of the ovaries, was removed, the uterine cervix being cut across just above the os. Two months subsequently the patient was alive and well.

Hysterectomy, as the operation of the removal of the entire uterus is now generally designated, is a procedure which will, in some cases, be found safer than the removal of the tumour alone. It seems more particularly adapted for cases where the uterine tumour is very large, and widely attached to the uterus. Where the tumour is so situated that it blocks up the pelvis, seriously impeding the performance of the functions of the bladder and rectum, and where it cannot be pushed upwards into the abdomen, the operation is indicated. Cases of fibro-cystic tumours of the uterus, in which the process of softening and breaking up is giving rise to dangerous symptoms, are also suitable for hysterectomy. The mere size of the tumour, however, is no guide, for very large fibroid growths sometimes produce comparatively little inconvenience. Thus, in a patient under my care the abdomen was filled by a tumour of ten years' growth, extending up under the false ribs, but she was able to walk about with ease. On the other hand, the increase in weakness, the dyspnœa, and general discomfort may be such as to render it evident that the vital organs are seriously embarrassed in their action; and if the patient be at the same time debilitated by profuse hæmorrhages, the risk of an operation would by comparison be diminished.

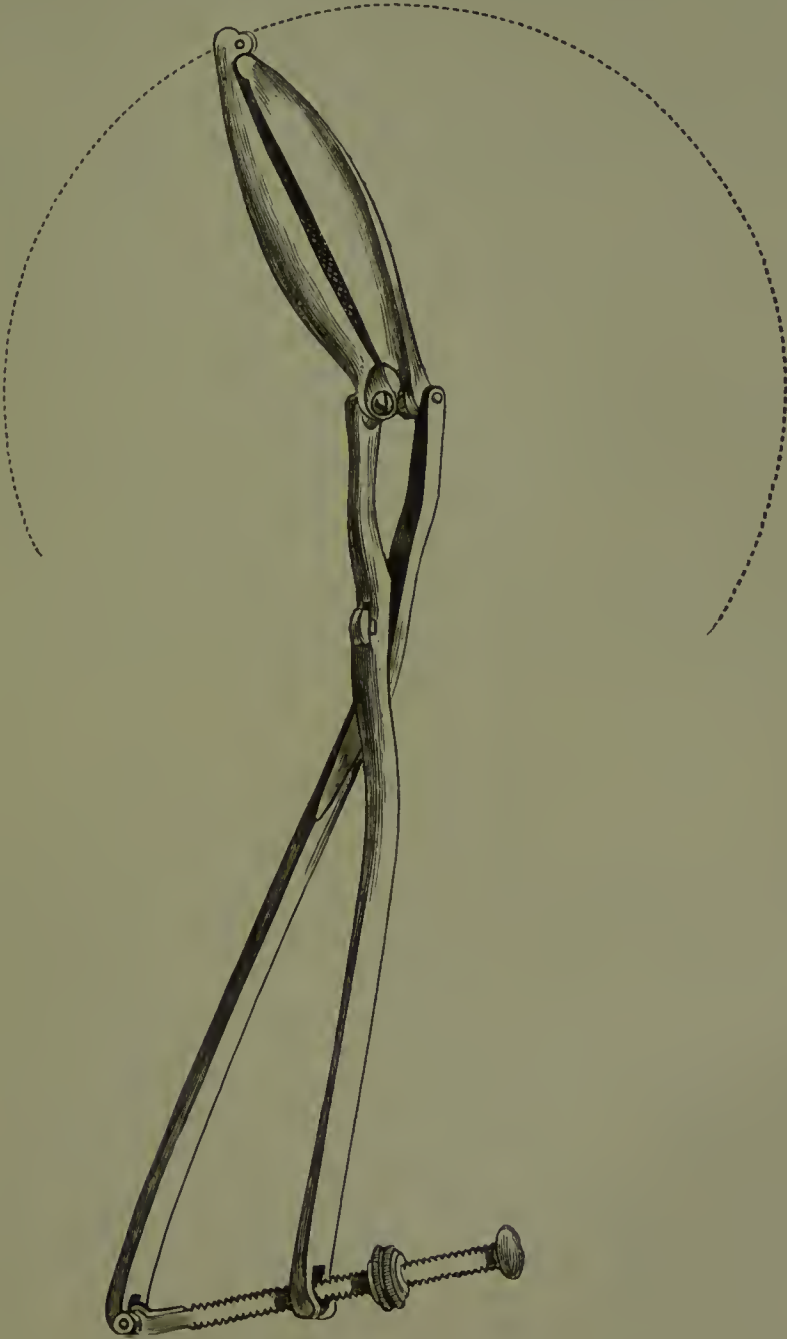
Dr. Storer's 'clamp shield' (fig. 181) is intended to assist in severe operations on the pelvic organs, such as removal of the entire uterus, by lessening the liability to hæmorrhage, and by rendering the action of the *écraseur* in sundering the tissues more certain and definite. The blades of the clamp are four inches long, the edges are serrated, and the blades are closed by a pair of forceps, very strong, and fixed to the blades by a ball-and-socket joint. The arms of the forceps are long, and great compression by this means is possible. The pedicle to be divided can thus be securely held and compressed in a position in which it would be difficult to accomplish the end by any other instrument.

There are various methods of performing hysterectomy for the cure of fibroid tumours of the uterus.

In these cases the removal of the cervix uteri is not a matter of necessity, and it is practicable therefore to separate the uterus

with its growth, leaving the cervix, or, at all events, a portion thereof. The separation having been made by the *écraseur*, or scissors, the stump can be brought to the edge of the abdominal wound and there fixed (Koeberlé), or it can be secured and the

FIG. 181.



pedicle dropped. Another method is that now known as the operation of Freund, intended more particularly for cases of cancer of the uterus (where the cervix has to be removed), but also applicable probably in certain cases of hysterectomy for fibroid tumours.



*Batley's operation (oophorectomy).*—Of late years Batley's operation has been had recourse to in certain cases of fibroid tumours of the uterus, the object being to put an end to ovulation, and consequently to bring also to an end menstruation and hæmorrhages from the uterus. The hæmorrhages produced by uterine fibroid tumours are sometimes very severe, and when they are uncontrollable by other means Batley's operation may be legitimately had recourse to.

Batley's operation is an alternative to hysterectomy. The two operations have practically the same result. There are as yet no sufficient data for deciding on their applicability to particular cases. It would seem to be easier to remove the ovaries than the uterus, and it would appear to be also a safer operation, more especially when the uterus is very large; but the operation has not always been found so easy as it was anticipated to be.

In the 193 cases of complete double oophorectomy collected by Batley (Inter. Med. Congress, 1881) there were 37 cases in which the operation was done for the relief of uterine fibroids. Out of the 37 cases 15 died and 22 recovered (59 per cent.). This percentage of recovery is not very high, and it may be justly urged that many of the patients who died of the operation might not have died of the fibroid tumours.

#### GENERAL AND PALLIATIVE TREATMENT.

It appears probable that in the future much greater results than any as yet attained will be achieved by what may be termed general nutritional and invigorating treatment of patients suffering from fibroid tumours of the uterus. As yet various medicinal agents in the form of drugs, taken by the stomach, or introduced through the skin by baths, by hypodermic injection, or by vaginal injection, have been chiefly employed, and undoubtedly with a fair amount of success. As I have already stated in speaking of the etiology of these uterine growths, there seems to be reason for supposing that the general nutritional processes are at a low level of activity in such cases.

Thus Dr. Ephraim Cutter,<sup>1</sup> following up the notion first suggested by Dr. Salisbury of Cleveland, Ohio, employed animal food largely in the treatment of cases of fibroid tumour. In seven cases a more or less strictly animal diet was perseveringly carried out, with results of a very decided character in almost all cases.

<sup>1</sup> *Amer. Obst. Journ.* vol. x. p. 562.

The tumours diminished or disappeared, and the improvement in health was most marked.

If we suppose that these tumours are allowed to grow because the uterus is generally in an atonic weak condition, it will not be difficult to understand that a stimulating health-giving dietary will, by better nourishing the uterus, enable it to discharge its functional duties more completely.

Since I became acquainted with Dr. Salisbury's views, the inquiries I have made of patients as to their habits in regard to taking meat as an article of diet have convinced me that there is here ground to work upon in regard to therapeutic influence on the growth of fibroid uterine tumours. And I have in several cases observed that much benefit has accrued from adopting a very liberal animal diet in such cases. It is true that in these cases other measures were employed at the same time (drugs internally administered, etc.) which might have been credited with some part of the beneficial results observed. Yet my opinion is that the meat had a very decidedly good effect.

The general treatment of cases of this kind should then consist—(1) in the very careful nourishing of the patient by animal food, given at first in small quantities at a time, as a rule, but very frequently; after a time the meals may be less often but more in quantity; (2) in the employment of baths, rubbings and friction of the skin, whereby the circulation may be quickened, together with moderate outdoor exercise.

Ergot has been extensively administered during the last few years hypodermically. . Hildebrandt's method<sup>1</sup> has been most generally employed. It consists in taking up a firm fold of skin, inserting the canula perpendicularly into the crest of the fold to the depth of one-half the length of the canula, so that the fluid may enter the thick subcutaneous tissue. Hildebrandt injected about  $2\frac{1}{6}$  grains of aqueous extract of ergot (Wornich's), dissolved in water, and a minute quantity of glycerine added. In one particular case related, fifty injections were made between May 22 and Aug. 1. Dr. John Williams uses a solution of sclerotic acid. Hildebrandt's conclusions are, that the treatment is most likely to be beneficial when the tumour is well provided with muscular tissue, when it is sub-mucous, when the walls of the uterus are sound, capable of vigorous contraction, and no inflammatory action present. His results in favourable cases were very encouraging.

<sup>1</sup> See his papers in *Amer. Journ. of Obst.* 1875, vol vii. p. 529.

My own experience as to the effects of ergot applies to its internal administration. In 1869 I saw, with Dr. Brunton, a lady æt. 47, who had then a tumour, well marked, and which continued to grow for some time afterwards, occasioning very great loss of blood periodically. In this case Dr. Brunton subsequently employed ergot given regularly and freely at the menstrual periods, and the result was the subsidence of the tumour.<sup>1</sup> I have known of other cases also when very decided benefit resulted from the use of ergot.

On the whole, it appears that ergot has in many cases a great power in controlling or diminishing the hæmorrhage and leucorrhœa in cases of fibroid tumours; that in a smaller number of cases it is capable of effecting a decided diminution in the size of the tumours, and in a few cases of procuring its disappearance, while in other cases its effects are not very obvious. The remedy could only be expected to have a good effect when used for a considerable time. Thus, it might be used daily, for a week together, every other week, and this plan continued for three or four months.

*The Kreuznach water treatment.*—The waters of the baths of Kreuznach have obtained great celebrity in the treatment of cases of fibroid tumours of the uterus.

The course of treatment adopted at Kreuznach<sup>2</sup> consists in employment of baths of the Kreuznach water, to which a certain quantity of the 'mutterlauge' is added, so as to make them stronger. A medium bath contains fifteen pounds of fixed elements, seven of chloride of sodium, seven of chloride of calcium, two ounces of bromide of sodium, and five ounces of chloride of lithia, with other elements in minute quantities. About forty baths are considered the full course. At the same time compresses, douches, and injections into the vagina and rectum are employed. The treatment can be conducted at home by means of water sent out from Bad Kreuznach.

It is a matter of surmise which of the ingredients is the more potent in the action of Kreuznach water. It is generally considered that the bromide is the more important. In practice I have for some years largely employed the bromide of potassium, giving for months together twice a day (10–15 grain doses), and have seen cases in which it has appeared to be of great service. It is very difficult to assign its precise merit, however, to any one therapeutic agent, inasmuch as generally two or three are used

<sup>1</sup> Case reported by Dr. Brunton, *Obst. Trans.* vol. xiii. p. 282.

<sup>2</sup> See Dr. Engelmann's account. Paper read at Obst. Society of Edinburgh.



concurrently. And thus in certain well-marked cases of improvement under treatment which I could adduce, it is not possible to say positively whether the medicine or the diet should be credited with the good result.

The Woodhall Spa waters (Lincolnshire) contain bromine in even greater quantity than those of Kreuznach. And, so far as can be gathered from recorded cases, those waters have an action resembling that of Kreuznach water on fibroid uterine tumours.

*Treatment by electrolysis.*—Drs. Gilman Kimball of Lowell, and Cutter of Boston, U.S.A., have operated on thirty-six cases of fibroid tumour of the uterus, of considerable size, by electrolysis. Dr. Thomas reported on the cases to the New York Obstetrical Society in November 1876.<sup>1</sup> The electrodes were stylets seven and a-half inches long, including the handle, and gutter-shaped; one electrode introduced above the umbilicus, the other below it, to depth of four inches. The current kept up for fifteen minutes, the skin protected by covering the upper part of the stylet with non-conducting material. The electrodes next introduced one on each side of umbilicus: great watery discharge always produced by the operation and much urine secreted. Dr. Thomas analyses the results, but I have made the following analysis as giving the results more succinctly. In two cases the tumours proved to be malignant; in one the operation was incomplete; in 17 the tumour diminished decidedly, the diminution being in a few cases great; in three cases (very large tumours) the tumour disappeared; in five cases arrest of growth occurred; in six no effect observed; in two cases the patient died.

*Various other remedies.*—Mercurials have been employed in small doses, continuously in some cases. Probably they act best in conjunction with bromine in some form or other. Dr. Tanner found mercury the only remedy capable of arresting hæmorrhage in one case. Chloride of calcium was recommended by Dr. Rigby. Dr. McClintock reported favourably of its effects (30–40 drops of the solution of the Dub. Phar. three times a day).

Various secondary symptoms due to fibroid tumours often require attention. In some cases micturition is difficult or impossible without the aid of the catheter. In some cases the tumour has to be pushed up bodily out of the pelvis to relieve the patient of the pressure, and to allow of the action of the bowels; but this elevation of the tumour is not always practicable. Again, during parturition pendulous fibroids may come down into

<sup>1</sup> *Amer. Journ. of Obst.* vol. x. p. 117.

the pelvis, and have to be pushed backwards to allow of delivery. In cases where the pelvis is blocked up, great care is required to procure daily action of the bowels. Pain is a symptom very often requiring attention. I have known cases where the suffering was so intense and continuous that the patient was on the verge of despair. I recollect one case in particular, where pain was so violent and so difficult to relieve, that an operation was on the point of being performed, when it suddenly abated. Bromide of potash and opium together have the best effect in such cases. It is a good plan in cases where pain is considerable to cover the abdomen with iodine paint and repeat it from time to time.

Dr. W. H. Baker<sup>1</sup> of Harvard University has recently published a valuable paper on 'Drainage in removal of Submucous Fibroids.' He recites six cases. The tumours were all fibromyomata; all were attached to the uterus over the greater part of the half of their surface; all were in the body of the uterus, the os internum as yet undilated; in all the prominent symptom was excessive menstruation or hæmorrhage; age 32 to 42. The method adopted was, first, dilatation by sponge, for twelve to sixteen hours; then introduction of laminaria tents and further dilatation, followed immediately by enucleation after the method of Emmet, the tumour being dragged out of its bed and removal aided by scissors, Thomas's scoop, etc. The peculiarity is in the subsequent treatment. Dr. Baker inserts a tube into the cervix two and a quarter inches long, with internal diameter of three-quarters of an inch. This has slightly flanged edges below, and it is fastened to the os by wire, there being small holes to allow the wire to pass through. Latterly the drainage tube was perforated laterally and its upper extremity bevelled off. Dr. Baker has found this method of drainage most valuable, for there is after the operation a liability for the uterus to become flexed and thus to produce retention of decomposing fluids in its interior, followed by septic poisoning; the uterus being in a state of atony at the time furthers this effect. This method of drainage is limited to intra-uterine tumours, and is 'obviously non-essential in some of these.'

<sup>1</sup> Reprinted from *Archives of Med.* New York, Putnam's Sons, 1882.

## CHAPTER XLIII.

## CANCER OF THE UTERUS, VAGINA, ETC.

Cancer a frequent Disease of the Generative Organs in Women—Etiology considered—Influence of Age—Influence of Child-bearing and Marriage—Statistics—Antecedent Conditions—Laceration of the Cervix Uteri—Its Hereditary Character—Mr. Moore's Opinions on Varieties of Cancer of the Uterus—Medullary—Cauliflower Excrescence Part of Uterus usually affected—Extension to other parts—Symptoms—Sarcoma of the Uterus—Cancer of Vagina—Duration and Fatality of the Disease.

DIAGNOSIS—In early Stage—In advanced Stage—By aid of Speculum.

TREATMENT—Excision of the Cervix in Cauliflower Excrescence—Mode of Operating—Treatment of other Forms of Cancer of the Cervix—Excision—Removal of entire Uterus by Freund's Procedure—Bromine—Palliative Measures: To check Hæmorrhage and Discharges; to relieve Pain; to support the Patient—The Prognosis—Treatment of Cancer of the Vagina or Bladder—Association of Pregnancy with Carcinoma of the Uterus.

CANCER of the generative organs is undoubtedly the most formidable affection to which women are liable. Cancer, which experience has led us to regard justly with fear and apprehension, appears to attack women more than men, but in women the generative organs—the breast or the uterus—are a very favourite seat. In about 23 per cent. of all cases of cancer, the location is the uterus or the breast (uterus 18·5 per cent., breast 4·3 per cent., Virchow; uterus 15 per cent., breast 8·5 per cent., Marc d'Espine).

*Influence of age*—Cases of uterine cancer are noticed, for the most part, after the age of 30. The larger number of cases occur between the ages of 40 and 50, and about one per cent. of recorded cases occurred after the age of 70.

The following is a table given by Dr. West,<sup>1</sup> as containing the results of his own observations combined with those of Lebert, Kiwisch, Scanzoni, and Chiari:—

<sup>1</sup> *Lectures on the Diseases of Women*, 2nd ed. p. 368.



Between 25 and 30 years	.	.	.	26 cases
„ 30 „ 40 „	.	.	.	120 „
„ 40 „ 50 „	.	.	.	183 „
„ 50 „ 60 „	.	.	.	73 „
„ 60 „ 70 „	.	.	.	35 „
Above 70 „	.	.	.	5 „
Total	.	.	.	442

The following is an account of 54 cases observed by myself at University College Hospital, given in quinquennial periods:—

Between 28 and 30 years	.	.	.	2 cases
„ 31 „ 35 „	.	.	.	12 „
„ 36 „ 40 „	.	.	.	8 „
„ 41 „ 45 „	.	.	.	16 „
„ 46 „ 50 „	.	.	.	8 „
„ 51 „ 55 „	.	.	.	4 „
„ 56 „ 58 „	.	.	.	3 „
Total	.	.	.	53

The earliest instance I have seen was a case in private practice, where the disease began at the age of 23. The patient married at the age of 15, and had had two children, the youngest æt. five.

In 156 cases reported on by Mr. Sibley<sup>1</sup> the average age at which the disease began was 43·28.

Before the age of 25, then, uterine cancer is a rare disease. Dr. Churchill states that he has witnessed a fatal case in a woman under 25; and the same authority refers to two other cases—one by Wigand, in which the uterus was affected with scirrhus at the age of 14; and another by Mr. Carmichael, fatal at the age of 21. In Madame Boivin's table, 12 cases out of 409 are set down as under 20 years of age; but these cases of early cancer related by Madame Boivin are justly objected to, as probably not being cases of cancer at all. The youngest of Scanzoni's cases was 23 years old.

The opinion of Dr. Walthe, of Sir J. Paget, and others, is that the proclivity to cancer generally increases steadily and progressively with the age. It is to be remarked that, after the age of 50, the frequency of *cancer uteri* appears to diminish; but the diminution is rather apparent than real, for it must be remembered that the proportion of individuals living, and therefore available, so to speak, for cancer, every year becomes less and less.

*Influence of marriage and child-bearing.*—It was formerly a disputed point whether uterine cancer is most common in women who have had children, or in those who have had none. Dr. West says,<sup>2</sup> ‘Though ample proof to the contrary has been long since adduced, we still find it asserted sometimes that single women and

<sup>1</sup> *Med.-Chir. Trans.* vol. xlii.

<sup>2</sup> *Op. cit.* 2nd ed. p. 370.

those who have had no children are most liable to be attacked with cancer. The truth appears to be the direct reverse of this statement. . . . Scanzoni gives it as his opinion that, in a certain degree, sterility predisposes to the disease. The statistics of these two observers give the following results:—Of 131 married women affected with cancer, eight were sterile (West). Of 108 married women affected with cancer, 36 were sterile (Scanzoni). All, however, including Scanzoni, agree in considering that, in women who have had *many* children uterine cancer is more likely to occur, and this accords with my own experience. Thus, in Dr. West's 123 cases of cancer, in which the marriage was fruitful, the average number of pregnancies per case amounted to 6·8. In Scanzoni's 72 cases, the average number of pregnancies per case was 7·01. The average number of children per marriage in this country, given by Dr. West, is 4·2—an average certainly much exceeded in the cases of cancer uteri recorded by him, and still more so in the cases of Scanzoni. Mr. Sibley's researches, also the statistics of Dr. Tanner,<sup>1</sup> tend in the same direction.

The influence of *marriage* seems important. The following are particulars of 54 hospital cases observed by myself; thus—

Of five cases there is no note taken as to whether married or not.

In 48 cases the patients were married.

In one case the patient was single (but had had a child).

In these cases, then, it is remarkable that in 49 cases where it is known whether the patient had been married or not, 48 were married, and the single exception was a patient who, though not legally married, had been married in the sexual sense. This would seem to give reason for the belief that sexual intercourse is not without influence in the etiology of uterine cancer.

Then with respect to the influence of child-bearing, the analysis of my 54 cases gave the following results:—

In the 40 women who had had children, the total number of children was 179, or about  $4\frac{1}{2}$  children to each, very little in excess of the average number of children in non-cancerous cases, as estimated by Dr. West.

1 patient had had 12 children,				
1	„	„	10	„
6	„	„	9	„
2	„	„	8	„
2	„	„	7	„
etc, making a total of 179.				

<sup>1</sup> *A Clinical Report on Cancer of the Female Sexual Organs.* By T. H. Tanner, M.D., London, 1863.

It is noted further that there had been 10 miscarriages.

It is noteworthy that seven patients had had *no* children. Of three patients who had been married there is no note as to children or not.

So far as these cases go they would seem to indicate sexual intercourse rather than excessive fertility as a predisposition to uterine cancer.

I have recently looked over my notes of cases observed in private practice during six years (1873-79), 27 in number. There is not one of the 27 in which the patient was single. There are five cases in which it is not stated whether there had been children or not, but in all the other cases childbirth had occurred, two cases excepted, and in one of these latter cases there had been miscarriages.

*Laceration of the cervix uteri as a cause of uterine cancer.*—Observations made by Dr. Emmet of New York, and other eminent American practitioners, tend to show that malignant growths are not seldom associated with lacerations of the cervix uteri. This is a matter of very extreme interest. In this country the subject of lacerations of the uterine cervix is only beginning to attract attention, but in America the lesion has been considered practically important for some time. And it has been found that such lacerations do give rise, or at all events are antecedent to, the occurrence of malignant growths at the cervix uteri.

Speaking of epithelioma, Dr. Emmet<sup>1</sup> says: 'The growth follows an effort of nature to repair or remove the consequences of an injury received in child-birth.' Dr. Emmet states that he has never known a woman to have any form of epithelial cancer of the uterus unless she had at some time been impregnated. Thus, of 53 cases of malignant disease observed by him in private practice, 51 had all borne a number of children; the other two had suffered from effects of criminal abortion in early life and remained sterile. The facts related by him concerning 60 hospital patients are almost as striking. Dr. Emmet relates in full a remarkable case observed seven years before, which first made him acquainted with the influence of these lacerations in the production of malignant uterine growths. It results from Dr. Emmet's observations that uterine cancer is almost never observed unless in cases where child-birth has occurred or sexual intercourse with or without conception had happened. These observations of Dr. Emmet's are curiously confirmatory of the conclusion to which I had myself arrived from

<sup>1</sup> *Op. cit.* p. 493.



facts observed in my own practice as to the influence of sexual intercourse in the etiology of uterine cancer (see page 644).

Dr. W. H. Baker<sup>1</sup> of Harvard University, U.S., is a firm believer in the theory of the local origin of cancer. Some cases show a constitutionality from the first, but in the large majority of cases of cancer some local irritation, oftentimes long continued, is the starting-point of the disease. 'I know of no more frequent cause of cancer of the cervix uteri than the persistent irritation to which the everted lips of a lacerated cervix are exposed.' He would perform Emmet's operation for the repair of such a condition in every instance when the rupture is sufficient to allow any eversion.

*Other antecedent conditions.*—Mr. Moore, in a philosophical essay on the 'Antecedent Conditions of Cancer,'<sup>2</sup> adduced important facts. The evidence, in Mr. Moore's opinion, shows that 'the very large majority of cancers spring up without traceable hereditary influence, and the very large majority of such instances of the disease, which are thus independent of the ancestry of the person affected, are also not transmitted to any of the offspring. For three patients affected with cancer, 97 parents (who yet have a cancerous relative) and 97 children go free.' The disease is primarily a local one. Mr. Moore does not deny altogether that the disease is hereditary, but he believes that it is only rarely so. That there is a previous diathetic condition, or a disposition in the economy, which may determine the first formation of the tumour, Mr. Moore also admits, in accounting for those cases where cancer has appeared to originate from a blow. He quotes Broca, who says, in reference to such cases, that 'here we must admit the existence of a previous disposition in the economy before the local accident which determined the formation of the tumour; the diathesis hovered as it were over the organism.' He expresses his concurrence in these views.

Mr. Moore argues, further, that the disease can always be traced to a period when but one tumour existed; that the spread of the disease is a mechanical one, its apparent re-appearance in the same place after removal being probably due to an imperfect operation; that its appearance in internal organs after complete removal of the primary tumour does not prove that it originated of itself in such internal organs *after* the operation; that while in a few instances the hereditary character of the disease is well marked, in the great proportion of cases it is a personal disease, and not capable of transmission.

<sup>1</sup> 'Treatment of Cancer of the Uterus.' *Amer. Journ. of Obst.* April 1882.

<sup>2</sup> *Brit. Med. Journ.* August 20, 1865.

The arguments used by Mr. Moore are worthy of attentive consideration. It appears evident that the hereditary character of the disease is not so commonly substantiated as has been supposed, while in a few instances (three per cent. of the cases) this hereditaryness was extremely well marked. When hereditary, the disease appears to gather intensity as it descends, for it appears earlier in the daughter than it did in the mother, earlier still in the grand-child. Mr. Moore's belief that cancer for the most part originates in strong rather than tainted constitutions may be true in one sense of the word. The individual may be *apparently* strong and healthy, but not strong and healthy *quoad* the liability to this disease. It is quite true that at present we are unable to point out what it is that distinguishes an individual about to develop cancer from another who is to be free from it; but the advance of medical science will, it is to be hoped, clear up this important point. One thing is evident, the great necessity for the early detection of the disease, facts being in favour of the idea that if we could more frequently be made aware of its existence, there might be a fair chance of doing the patient much good in a considerable proportion of cases.<sup>1</sup>

The antecedent condition of system which has been present in the cases which have fallen under my own notice has been various. In some, the individual was in apparently good health, but in many the state of things was the reverse. Prolonged anxiety, depression of the general health, and an evidently low state of vital power, I have certainly been induced to regard as rather frequent antecedent conditions. Great debility and prostration from prolonged and excessive lactation has been apparently connected with the

<sup>1</sup> With respect to the effect of removal of a cancerous tumour on the duration of life, Mr. Birkett's facts are of great interest. The seat of the cancer was the breast. Of 150 patients who had it removed there survived—

Under 1 year . . . . .	8	Above 10 years . . . . .	2
Over 1 „ . . . . .	24	„ 11 „ . . . . .	2
„ 2 „ . . . . .	38	„ 12 „ . . . . .	1
„ 3 „ . . . . .	17	„ 13 „ . . . . .	1
„ 4 „ . . . . .	21	„ 14 „ . . . . .	2
„ 5 „ . . . . .	7	„ 15 „ . . . . .	1
„ 6 „ . . . . .	5	About 23 „ . . . . .	1
„ 7 „ . . . . .	10	„ 29 „ . . . . .	1
„ 8 „ . . . . .	4	„ 32 „ . . . . .	1
„ 9 „ . . . . .	4		

Whereas of 100 patients not operated on there died within first year, 14; survived 10 years, three; of these, two about 26 years; the average duration of life being about  $3\frac{1}{2}$  years.—*Brit. Med. Journ.* Sept. 29, 1866.

occurrence of uterine cancer in several instances under my own observation. But the facts and statistics before related as to the influence of the married state, the effects of intercourse, and the effects of lacerations or injuries of the cervix uteri due to child-birth are of exceeding importance, and further inquiries will doubtless elicit much additional valuable information on this very interesting subject.

In reference to the influence of *heredity* Dr. Fordyce Barker<sup>1</sup> of New York found that in only 7·3 per cent. of 487 cases of uterine cancer was the hereditary influence proved to exist.

*Varieties of cancer.*—The form of cancer usually witnessed in the uterus is the medullary cancer. The ‘epithelial’ comes next in order of frequency.<sup>2</sup> The medullary form of cancer attacks, in common with other forms of cancer, the lower part of the uterus first, in by far the majority of cases. The epithelial form is witnessed in the superficial and exposed portion of the cervix uteri, and it has been known, ever since the name was given to it by Dr. John Clarke, as the ‘cauliflower excrescence of the os uteri.’ It does not appear that, so far as the anatomical part of the question is concerned, the two diseases differ essentially; we find in both, on microscopic examination, cells and formations, which equally indicate the presence of cancer. The difference in the physical characters, evident to the touch and the unassisted eye, in the two varieties of the disease, appears to depend on the different anatomical arrangement of the tissues affected in the two cases. So that a case of cauliflower excrescence is one in which the cancer attacks simply the surface of the cervix uteri; but a case of cancer of the medullary form is one in which the disease attacks the tissues of the cervix more deeply, producing a very noticeable *hypertrophy* of the parts affected in the first instance, which

FIG. 182.<sup>3</sup>

<sup>1</sup> New York Academy of Medicine, Feb. 17, 1879.

<sup>2</sup> An excellent account of the *post-mortem* appearances in 58 cases of uterine cancer, by Mr. Henry Arnott, will be found in the *Path. Trans.* for 1870.

<sup>3</sup> Fig. 182 (from Martin's Atlas) represents the uterus and vagina affected with cancer.



spreads into and invades the adjacent parts, including the free surface. The two diseases frequently exist together; it being a matter of common observation, that in patients with the cauliflower excrescence, although the disease may appear limited to the os for a time, the medullary form of the disease generally afterwards attacks the uterus and thus causes death. In the cauliflower excrescence (see fig. 183), the villi covering the cervix become hypertrophied, the vessels with which they are supplied exceedingly enlarged, and forming loops; each villus is found to contain cells of every form: nuclear, formative, caudate, mother-cells, spindle-shaped or nucleated fibres, and binucleated cells, also cells in a state of fatty degeneration. A thick layer of epithelium covers the whole. The cauliflower excrescence thus owes its shape, textures etc., to the original configuration and relations of the villi covering the cervix uteri. The microscopic appearances in the other class of cases it is unnecessary to allude to.

The characters of the *cauliflower excrescence of the os uteri* are as follows:—From the greater part or the whole of the circumference of the os uteri a somewhat soft granular mass grows downwards into the vagina, at the centre of which is the aperture of the os, and above which is felt a narrowed constricted portion, the junction of the vaginal portion of the cervix with the vagina. The size varies. The more usual circumstance is that it escapes detection at an early period of its growth, owing to the symptoms at first produced being slight; and when first discovered it may be so large as to fill the upper part of the vagina. It may grow to such a size as to reach to the ostium vaginæ. Ordinarily, the growth consists of several portions, each of which is lobulated in shape, and separated by a fissure from the adjacent portion. One lip of the os is usually larger than another, and sometimes it is not at first easy to distinguish the orifice of the os between the mass of tumours in question, some of which may be as large as an apple, others smaller, but all attached to, and continuous with, the margin of the os uteri. If the patient be examined at an early stage of the growth, the os is found slightly puffed out, softer than usual, and presenting a granular feel. If the examination be made at a later stage of the disease, the vagina may be found filled and distended by a large spongy mass. At a still later period the growths may have partly disappeared, having ulcerated away, and then the os uteri may present the changes met with in the ulcerative stage of ordinary cancer of the uterus, together with those just mentioned. And in not a few cases when

the patient is for the first time examined, it is found that while presenting well-marked tumours of the cauliflower kind, the cervix itself is hardened, greatly thickened, and the uterus more fixed than usual. We may find that above the situation of the excrescences, the cervix uteri forms a pedicle comparatively healthy in structure; the pedicle may, however, be very short, and hardly to be felt. It not unfrequently happens that growths similar to those proceeding from the os uteri are found situated on the vaginal walls, in proximity to the os uteri.

The cauliflower excrescence of the os uteri is soft to the touch, unless under the constricting influence of astringent injections;

FIG. 183.



it has a peculiar granular feel, bleeds easily when touched, or after intercourse, sneezing, or straining; and an almost constant symptom is the presence of a copious watery, and latterly fœtid, discharge from the vagina. The drawing (fig. 183, after one in Sir J. Y. Simpson's Lectures) represents a large mass of this kind and its relation to the os uteri. The characteristics of this condition are physically those above stated; the one on which most reliance is to be placed diagnostically is the origin of the mass from *all*, or the greater part of, the circumference of the os uteri. The soft pulpy mass may give to the finger a sensation like that experienced on touching the os uteri in cases of placenta prævia, but the other circumstances present would hardly admit of the two conditions being confounded.

The symptoms of this disease are frequently very indistinct at first. The distinctive signs, watery offensive discharge, occasional bleeding, etc., may not show themselves early in the disease, or, if observed, they may be so slight as not to attract particular attention, and thus a considerable time may be lost before the disease is detected, or its presence even suspected.

Another form in which cancer may be found growing from the os uteri is the *medullary tumour*. From it the cauliflower excrescence is distinguished by its regular and extensive attachment or departure from the os, the medullary tumour growing from one side or other of the cervix, and being more or less pedunculated; by its granular structure, that of a medullary tumour being more consistent, and firmer, and lobulated; and

FIG. 184.



by the progress of the case, which advances much more rapidly to a fatal termination when the tumour is a medullary one. These medullary tumours have a surface more firm and even than that of the cauliflower excrescence, but not so firm as that of a *fibrous polypus* projecting into the vagina. From the latter tumour it would also be distinguished by the nature and the mode of attachment, the pedicle of the polypus being surrounded by the os uteri, whereas the medullary tumour grows from the side of the os, and not from the interior of the uterus. Profuse

hæmorrhages, foetid discharges, etc., may be observed equally in cases of medullary tumour and of polypus. In those cases of polypus where the tumour is so large as to fill the vagina, or where the surface of the mass is apparently or actually adherent at the os, the diagnosis might be attended with difficulty. The presence of a large medullary mass growing from the os uteri is not, it must be remarked, a common phenomenon in cases of cancer of the uterus. The drawing (fig. 184) represents a tumour removed by me in University College Hospital, June 1866. On microscopic examination it proved to be malignant, although smooth and tolerably hard. The patient subsequently (Feb. 1867) appeared again, and the uterus was then affected with carcinoma.

When cancer attacks the surface *alone*, it appears that it may be for a very considerable time restricted to that part, though



this is rare. The most common event is that the disease attacks simultaneously the superficial and the deep parts of the cervix uteri, with the result that there is cauliflower excrescence of the os and infiltration with medullary cancer of the cervix itself. In some rather rare instances, however, while the cervix remains apparently sound and healthy, an insidious invasion of the upper part of the uterus, by carcinomatous deposit, occurs. Dr. West met with this affection in two out of 120 cases of uterine cancer. Sir J. Y. Simpson stated that about two cases out of 30 of cancer of the uterus are of this kind. The deposit may be observed in the outer layer of the middle coat of the uterus, or in the sub-peritoneal or peritoneal coat; or attacking the whole thickness of

FIG. 185.<sup>1</sup>

the uterine walls; or in the mucous or sub-mucous coat of the body or fundus uteri. In both of Dr. West's cases 'the enlargement of the uterus was very considerable; in one it measured six inches in length, and in the other was nearly as large as the adult head.' From the uterus the disease spreads to the adjoining tissues at the upper part of the vagina; the glands in the pelvis become affected. The bladder is not seldom involved (see fig. 185), one result being vesico-vaginal fistula. Not long since I saw a lady in whom the uterus had apparently become blocked up by extension of the disease to the fundus of the bladder, death resulting apparently from rupture of the dilated ureters into the abdomen. The disease may extend into the rectum; all these

<sup>1</sup> Fig. 185 (from Dr. Arthur Farre) shows the bladder, uterus, and rectum simultaneously affected with cancer.

organs—the vagina, bladder, and rectum—may be found in communication with each other in consequence of the ulceration of the cancerous infiltration. Indeed, the condition to which the unfortunate patient may be reduced by this dread disease is often as deplorable as it is possible to conceive. Death itself is preferred to the continuance of such unmitigated and unrelievable distress.

*Sarcoma of the uterus.*<sup>1</sup>—Under the terms ‘sarcoma of the uterus’ (Virchow), ‘recurrent fibroid tumour of uterus’ (Hutchinson), has been described a peculiar disease of the uterus of a malignant, or certainly quasi-malignant, character, consisting in the formation of a growth within the uterus, gradually expanding the organ, and protruding finally at the cervix. Professor Alex. R. Simpson of Edinburgh has published a valuable monograph on the subject.<sup>2</sup> He describes four cases of his own, and presents accounts of a total of forty-eight cases. The peculiarity of the growth is, that, notwithstanding an apparently complete removal, it is liable to recur. The general history of such cases resembles in some ways those of fibrous polypus of the uterus—there is hæmorrhage, profuse leucorrhœa, etc. But in sarcoma of the uterus there is generally also pain more or less severe, and such as is generally observed in cases of cancer, and an offensive odour of the discharges. Cases have been related in which the growth has been removed three or more times, with relief for a time, the disease recurring and proving ultimately fatal nevertheless. A curious feature in four of the cases collected by Professor A. R. Simpson was the complication of inversion with the sarcoma. Dr. Gaillard Thomas<sup>3</sup> has observed four cases. He considers the disease intermediate between myofibroma and true cancer. The growth is slower than that of cancer. The prognosis is always unfavourable.

I have myself seen an undoubted case of sarcoma. The uterus was found to be much enlarged and filled with a soft pultaceous yet consistent mass, which had to be removed by means of a tablespoon from the interior of the uterus. The patient was a widow, æt. 55. Three operations were performed in this case at intervals of some months. Finally death occurred, and the uterus seemed almost to have disappeared, the disease having extended to the rectum.

<sup>1</sup> In the chapter on Fibroid Tumours this affection has also been in part described under the term ‘recurrent polypus.’

<sup>2</sup> ‘On Sarcoma Uteri,’ *Edin. Med. Journ.* Jan. 1876.

<sup>3</sup> *Amer. Journ. of Obst.* vol. vii. p. 45.

It appears probable that these cases of sarcoma of the uterus have the same relation to cancer of the body of the uterus as epithelioma of the cervix has to medullary cancer of the cervix. A pulpy soft mass grows from the uterine mucous membrane—is probably a degeneration of this—forms a tumour *in utero*, and later on the disease attacks the uterine wall itself.

The *general symptoms* present in cases of uterine cancer vary according to the stage of the disease. Ordinarily there is pain, seated in the uterus or near it, and more or less constant; but by no means invariably. It is yet a question whether such pain actually precedes the development of the tumour; probably it does in the majority of cases. The disease progressing, the patient becomes evidently ill; she has a peculiarly worn expression in many cases, but not always; the tint of the skin is often sallow,<sup>1</sup> but chiefly where there have been frequent losses of blood. Later on the patient suffers from indigestion, often exceedingly intractable in form: vomiting or nausea is not rarely witnessed. Hæmorrhage is common (see p. 459). Sanious, watery, puriform, or offensive discharges, almost invariably present at some stage or other of the disease, are signs also of great importance.

*Duration of cancer of the uterus.*—Lebert gives an average of sixteen months; Dr. West fifteen months. Hence, in a given case, if we are informed that the patient has been subject to irregular (*i.e.* non-periodical) hæmorrhages for upwards of two years, this fact would be against the probability of the hæmorrhage being due to cancer uteri. Sir J. Y. Simpson's experience led him to fix a longer period as the ordinary duration of cancer uteri. 'Patients usually die in from two years to two years and a half after the detection of the disease,' says this author.<sup>2</sup> According to the same authority, where the disease occurs in aged persons, and has taken on a slow and senile character, its course may be very protracted. In Dr. Fordyce Barker's cases (New York) the average duration in 26 instances was three years and eight months.

As regards the fatality of uterine cancer, the general custom has been to take an extremely gloomy view of them, and to consider such cases hopeless in so far as recovery is concerned. Dr. Barker, in the paper before quoted, gives facts observed by himself which encourage a somewhat less hopeless view in certain cases of this disease. He says that in one case eleven years had elapsed

<sup>1</sup> See 'Examination of Os Uteri.'

<sup>2</sup> *Med. Times and Gaz.* Jan. 15, 1859.



since he made the diagnosis of uterine cancer, the patient still evidently suffering from the disease, but able to go about. He states that he has removed the cervix for epithelioma in 11 cases, nine of which recovered and have remained well. In one case recovery from uterine cancer occurred after repeated use of the actual cautery. In another a free application of the acid nitrate of mercury was followed by complete and persistent cure.

When the body of the uterus or the tissues of the cervix are affected, and have begun to ulcerate, the disease usually progresses rapidly. How long the stage previous to this may last, we have no direct evidence. When the surface of the os only is affected (cancroid or cauliflower excrescence), the disease is by no means so quickly fatal. One of the most valuable facts in reference to this question is given by Sir J. Y. Simpson in his 'Lectures on Diseases of Women.' The patient, the subject of the case, had a large cauliflower excrescence the size of an egg removed eighteen years previously. Since that period she had had five children, and was still alive. With reference to this case it should be stated that no 'caudate or spindle-shaped bodies' were found in the tumour removed.

*Cancer of the vagina.*—Cancer of the vagina is far less frequently met with as a primary affection than cancer of the uterus. But the disease is now and then met with here primarily. It invades the vagina not unfrequently by extension from above. Thus in 54 cases of carcinoma uteri observed by me in hospital practice, the vagina is noted as being affected as well as the uterus in 11 cases. In some of these 11 cases it appeared as if the disease had begun in the vagina. In one case in private practice the vagina was very extensively affected, while the uterus gave very little indication of participating until later on.

The disease occurs (when primary or secondary) as an infiltration in the vaginal wall, or it may begin as a papillary growth of villous character on the free surface. By the finger the physical condition discovered may thus vary exceedingly. The vagina may be so blocked up that the passage of the finger at its entrance is very difficult indeed. The bladder or rectum becomes later on perforated or not according to circumstances. Another effect is that the ureter on one side may become so compressed that the functions of the corresponding kidney are arrested.

*Diagnosis in the early stage.*—The diagnosis of cancer of the uterus, in its early stage, from certain other conditions which may produce somewhat analogous physical alterations in the os and

cervix uteri, and which may give rise also to symptoms more or less resembling those witnessed in the early stages of this justly dreaded disease is a matter of the utmost importance. A fissured, irregular, indurated, and enlarged condition of the vaginal portion of the uterus and of the lips of the os may proceed from a variety of causes. In *women who have had children*, the os uteri is generally more or less fissured, giving the portio vaginalis a sort of lobulated feel; the number of fissures and lobes varies from three to four, five, or six; and in women who have had severe labours, rendering the use of instruments necessary, the os may be found very deeply fissured, the parts having been torn during labour. If the uterus be healthy, however, there is no marked enlargement of the part—on the contrary, there is a tendency to a diminution in its size, the diminution being more marked as the patient becomes older. The fissured condition of the os uteri is thus quite compatible with the presence of health. When, however, in addition to this, the lips of the os uteri are indurated and larger than usual, the whole vaginal portion participating in this condition, this combination is indicative of disease. It may be due to the comparatively harmless *hypertrophy of the uterus* (generally synonymous with defective involution of the organ after childbirth), to a *chronic inflammatory condition of the cervix*, to the presence of *fibrous tumours* in the walls of the uterus, to *carcinomatous deposit* in the substance of the portio vaginalis—the latter being the first in a series of changes which may result in the death of the patient at no distant period—to *tuberculous affection of the cervix uteri*, or to presence of *small fibrous tumours* in the portio vaginalis. The diagnosis between these several conditions is often one of great difficulty, and is only arrived at by an attentive consideration not only of the physical signs themselves, but of the attendant phenomena, and of the present and past general condition of the patient.

Dr. Henry Bennet, whose searching analysis of the abnormal conditions of the os uteri in relation to the diagnosis of cancer cannot be too highly spoken of, and who first laid down exact rules for the diagnosis of cancer from a condition with which it was formerly very frequently confounded—viz. chronic inflammatory induration—has accurately pointed out some of the diagnostic points in reference to the question now at issue, in the following words:—

‘When the lobular, knotty, irregular condition of the cervix is the result of laceration, and is simply inflammatory, the fissures

which separate the lobes radiate round the cavity of the os on a centre, which is not the case in a cancerous tumour—each separate lobe being perfectly smooth in itself, and free from tubercles or superficial inequalities.<sup>1</sup>

The mere *size* of the lobules indicates nothing of malignant character, provided they be tolerably smooth; the depth of the fissures is of favourable import also when the lobules are smooth. Extreme hardness is often observed when no serious disease is present. Uniformity in the degree of the hardness of the lobules is favourable. Slight excoriation of the surface of the lobules is quite compatible with simple inflammation, or similarly innocuous conditions. A deeply *excavated* ulcer on some portion of the surface would excite apprehension as to the cancerous nature of the enlargement. When the lobulation and enlargement is limited to one side of the os, this may be due to growth of a non-malignant tumour in the substance of the cervix. The smoothness of the tumour, the absence of general signs of disease, absence of bloody and offensive discharges, would generally, but not always, put suspicion of cancer on one side. A quickly growing lobular enlargement of one lip of the os uteri is probably malignant in character.

Time is of importance in the diagnosis of these cases. An induration and enlargement of the os uteri which is known to have existed for some years may be generally pronounced to be non-cancerous.

Negatively, the points now alluded to are of great diagnostic value. Thus, supposing the patient to be suffering from pain, offensive discharge, occasional hæmorrhages, etc., and suspecting herself to be the subject of cancer, a very simple examination might, by revealing an absence of all induration or enlargement of the os uteri, render it almost certain that the case was not one of cancer. The rare occurrence of cases in which the disease begins in the fundus uteri prevents this rule being quite absolute.

Unquestionably the most important, and perhaps the least fallacious, guide to the diagnosis in a doubtful case, is the mobility or immobility of the uterus—a point which has been already alluded to; and when the uterus is found to be as movable as usual, while there is an absence of induration in the cellular tissue before and behind the cervix uteri, no considerable pain, no offensive discharge, no particular constitutional derangement, we may safely conclude that the case is not one of cancer. The immo-

<sup>1</sup> *On Inflammation of the Uterus*, 4th ed. p. 90.



bility due to pressure of tumours within the pelvis must not be confounded with the condition produced by cancerous disease of the uterus itself. Lastly, it must be recollected that mobility of the uterus is not necessarily and always lost, even in advanced cases of cancerous disease, although as a rule it is so lost.

With all the helps to diagnosis which have been mentioned, several cases will remain of which it may be for some time difficult to determine the true nature, and to say whether the diseased condition of the cervix be of malignant or non-malignant character. The inequality of the induration present is generally an indication of malignant disease. Again, the fissures which separate the lobes of the os may be at an early period of the disease smooth at their edges, as in the non-malignant form; but they soon assume a sharply distinct shape. Hæmorrhage from the generative organs is a symptom of cancer usually observed at an early period, but hæmorrhage may be entirely absent, the catamenial discharge only being slightly increased. The value of 'hæmorrhage' as a symptom of cancer has been discussed at p. 459. Another symptom also early observed is pain in the uterine and lumbar regions—not merely discomfort, but actual pain. Weakness and general debility may be observed also from the very commencement. The importance of time has been alluded to, and much aid will be derived from observation of the progress of the case in making a diagnosis. Thus, if a thickened, fissured, indurated condition of the os uteri have existed in a particular case for a considerable time, say twelve months, and no particular disturbance of the general health be observed, it is highly probable that the affection is not malignant. It is not in the nature of cancer affecting the substance of the cervix uteri, and giving rise to physical changes such as those described, unless under very exceptional circumstances, so long to delay its progress.

The possibility of laceration of the cervix uteri, leading to cancerous degeneration of the os, must be borne in view in forming a diagnosis. If, as is believed by eminent American authorities, such lacerations are often forerunners of cancer of the uterus (particularly the epithelioma of the cervix), a lobulated and deeply fissured condition of the os associated, would be naturally carefully scrutinised. Dr. W. H. Baker<sup>1</sup> says: 'I know no more frequent cause of cancer of the cervix uteri than the persistent irritation to which the everted lips of a lacerated cervix are exposed; and if the only thing to be gained by Emmet's

<sup>1</sup> *Amer. Journ. of Obst.* April 1882.

operation for the repair of such a condition were to diminish the tendency to the establishment of this disease (cancer of the uterus), I would perform it in every instance where the rupture was sufficient to allow any eversion.'

In the diagnosis of cancer at an early period, Dr. Montgomery laid particular stress on a shotty condition of the margins of the os, associated with turgidity, and with a crimson discoloration of the os tinæ generally. In the first stage of cancer of the uterus, Dr. Bennet states that he would expect to find 'shot-like, pale, indolent indurations, all but insensible to pressure, strewn irregularly over the cervix, or an irregular hard tumour similarly characterised developed on its surface.' In a case related by Becquerel<sup>1</sup> there was a small, hard, violet-coloured tumour, projecting from the surface of the cervix at a very early stage of the disease. It was unequal and nodulated. The condition of the os in the early stage of cancer in a few cases in which I have had the opportunity of getting accurate information on this point was as follows: Nodular irregular eminences, the mucous membrane covering them having a deep or livid blue colour, and contrasting with adjacent structures not yet affected with induration and irregularity of contour. This applies to cases of cancer commencing in the substance of the os uteri, and not to cases of cauliflower excrescence when the disease attacks primarily the papillary structures on the surface.

The largely patent condition of the orifice usually present in cases of cancer is not peculiar to it, as already remarked.

The presence of a fœtid discharge from the vagina is too often looked upon as indicative of cancer. Wherever there is hæmorrhage, there may be fœtid discharge due to decomposition of clots of blood which have been detained.

There may be a healthy condition, or a comparatively healthy condition at least, of the os and cervix uteri, and still cancer of the uterus may be present, the disease being confined in some rare cases to the body or fundus uteri. In such cases, a digital vaginal examination might reveal little or nothing. If the patient present constitutional signs, like those of cancer, with occasional hæmorrhages, profuse and continuous fœtid discharges, watery or purulent, while no alteration of the os and cervix is revealed by examination, cancer of the fundus uteri should be suspected. The upper part of the uterus is generally much enlarged in such cases, and may be felt so enlarged above the pubes.

<sup>1</sup> *Traité Clin. des Maladies de l'Uterus* (Paris), tom. i. p. 321.

In conclusion, it should be borne in mind that the condition of the os and cervix, to which the previous remarks apply, is one simply of induration, slight enlargement, and lobulation. Ulceration, marked loss of substance, associated with hardening, etc., is a condition to which the remarks in question are not at all applicable.

Irregularity, unevenness, etc., in different parts of the vaginal portion, may be due to presence of *small rounded tumours* embedded in the tissue of the cervix. Such tumours, which are of fibrous character, might give rise to suspicion of cancer, from the fact that one side of the cervix would under such circumstances be hard or nodulated, and the other side soft and natural. These tumours are, however, very rare : they are of slow growth, give rise to little inconvenience, and never to grave symptoms, such as are observed in cancer.

*Tuberculous enlargement of the vaginal portion* is a condition of exceeding rarity. It is characterised by presence of tumours of uncertain size, of rounded form, at first firm, afterwards softer, yielding to the pressure of the fingers, and indistinctly fluctuating ; always accompanied by considerable engorgement of the cervix uteri. It is a condition due to presence of masses of tubercle yet unsoftened, to tubercular infiltration, or to inflammatory action attendant on softening.<sup>1</sup> Occasionally are seen small yellow deposits on the surface of the cervix the size of a split pea, or smaller, and giving issue, on being pricked, to a small quantity of matter of the consistence of pus. These deposits, which have been alleged to be tuberculous, Dr. West, the accuracy of whose description of them I can quite confirm, looks upon as due to hypertrophy of the Nabothian follicles.

Practically, the importance of the question at issue is not great. The existence of tubercle of the cervix is denied by Rokitansky ; it is certain that tubercular infiltration of the cervix with tubercular softening, etc., is very rare. I believe, however, that in women of tubercular tendency, and in whom the cervix uteri is sometimes found enlarged, hypertrophied, and indurated, this enlargement is of tubercular origin, though, anatomically speaking, there may be no deposit of tubercle. I have in private practice seen cases which might be referred to this category. This is a point which is, however, more interesting in connection with the subject of treatment than that of pathology.

*Diagnosis in the later stages.*—The condition of the parts

<sup>1</sup> Robert's description, quoted by Dr. West, *op. cit.* p. 362.



characterised by the presence of *irregular enlargement, induration, destruction, and loss of substance of the vaginal portion and of the lower part of the uterus, all more or less combined*, is that present in the ulcerative stage of cancer of the uterus; and it is a condition which is so characteristic that it can hardly be mistaken for anything else. The degree to which the destruction of substance is found to have proceeded varies very much. The os uteri may be found to have lost its natural shape, or the vaginal portion has wholly disappeared, and the finger passes into

FIG. 186.<sup>1</sup>

an excavation with hard irregular walls, which are constituted by the remains of the vaginal portion, or by the carcinomatously infiltrated cellular tissue at the upper part of the vagina. Above is felt a hard irregular mass, the somewhat enlarged uterus, fixed and immovable, and not easily definable from the surrounding hardened structures. A not unfrequent condition of the os uteri in cancer is presence of a hard, smooth, sharply-defined surface, just as if a piece had been actually removed by the knife, leaving

<sup>1</sup> Fig. 186 represents carcinomatous infiltration of the posterior lip of the os uteri, also ulcerative destruction of the anterior lip.

the edges well marked. Such a condition is represented in fig. 186, showing at one part of the os nodular projections, at another the peculiar condition just described. 'When you feel,' says Sir J. Y. Simpson,<sup>1</sup> 'a rough irregular excavated or anfractuous ulcer seated on a hardened base, and surrounded by hardened tissue, cancer is present.' The process of ulceration may be found to have extended to the rectum, in which case fæces and flatus pass from the vagina to the bladder, occasioning involuntary micturition; or to both. In the latter case the rectum and bladder open into the common cloaca, resulting from the destructive process which has now been going on. The destructive process may have affected one side only of the os, the other only being as yet enlarged, and denser and firmer than usual. It is not uncommon to find fungous softish masses, which bleed when touched, growing from the already ulcerated surface. This ulcerative stage of the disease is almost universally characterised by the presence of an offensive leucorrhœal discharge, this discharge becoming tinged with blood after examination or after exertion. There is a general failure of the strength of the patient, emaciation, want of sleep, and disturbances of the digestive organs, shown by nausea, vomiting, etc.; and, what is important, there occurs from week to week perceptible increase in the intensity of these symptoms, often a very rapid one: the skin of the patient has in some cases a remarkable straw-coloured tint, there are lacinating pains, severe in character, felt in the uterine region; at this period, also, pains depending on pressure of the enlarged uterus on the nerves in the pelvis are very commonly observed, viz. pains along the course of the sciatic and other nerves. Other symptoms attending this stage of the affection are, pains in the breast, and, not seldom, increased sexual desire. The occurrence of 'hæmorrhages' and the presence of 'offensive discharges' are characteristic, but the value of these as signs of the presence of cancer has already been discussed (see p. 513).

With reference to the value of 'cachexia' as a means of diagnosis, Mr. Sibley, in his valuable 'Contribution to the Statistics of Cancer,'<sup>2</sup> makes some important remarks.

'The cachexia,' says Mr. Sibley, 'is closely proportionate to the amount of hæmorrhage, discharge, and pain. In cases where there is but little hæmorrhage, and a small amount of discharge, the cachexia is hardly obvious, and this is usually observed even where

<sup>1</sup> *Med. Times and Gaz.* Jan. 15, 1859.

<sup>2</sup> *Med. Chir. Trans.* vol. xlii. p. 194.

the cancerous tumour has attained great magnitude. It sometimes happens that the cachexia becomes well marked, even where there is but little hæmorrhage or discharge; but in these cases the cancer is usually found to have involved some important internal organ, and to have interfered with some vital function. On the other hand, in those patients with whom there is profuse discharge, and frequent attacks of hæmorrhage, the wasted sallow visage of advanced cancerous disease becomes obvious at an early stage of the complaint. In no class of cases is the cachexia more pronounced than in uterine cancer.' And he has come to the conclusion that 'the presence or absence of cachexia is valueless as an aid to diagnosis. It appears to be the result of a local disease, and is not to be regarded as evidence of a state of system which leads to the production of cancer.'

In a few rare cases destruction of the uterus by cancerous ulceration progresses to a very advanced stage, all the usual symptoms of cancer—pain, offensive discharge, hæmorrhages, constitutional affection—being entirely absent. When cancer of the uterus in the ulcerative stage is present, the diagnosis is not usually difficult when digital examination is practised, those rare cases excepted in which the lower part of the uterus is sound, or apparently so, there being cancerous disease of the interior of the body of the uterus. In these cases, the result of the ordinary digital examination would be liable to mislead, unless corrected by due attention to the more obvious and symptomatic signs of the presence of cancer.

The diagnosis of cancer of the uterus advanced to the stage of ulceration, and presenting to the touch the physical characters above described, is not a matter of difficulty; the difficulty lies, and especially with those whose sense of touch is uneducated, in determining that cancer is *not* present. Thus a patient may present herself suffering a good deal from pain, who is the subject of profuse menstruation, of a profuse discharge, which is, she states, occasionally 'unpleasant' to the smell. On digital examination of the os uteri, a decided enlargement and hardening is felt at one part, and a softer velvety surface at another. But the hardness and induration may be due, as already pointed out, to simple hypertrophy, inflammation or congestion of the vaginal portion: the feeling of the presence of a softer portion may be produced by the inner surface of the os, with its lining in a hypertrophied, shaggy, and villous state.

A peculiar form of destructive ulceration of the cervix uteri



has been in a few rare cases observed, all that has been met with on examination being *loss of substance*. The lower part of the uterus has disappeared, and in place of the cervix there is a rough irregular border, above which the body of the uterus, movable as usual, is felt by the finger: there is an 'absence of any thickening, hardness, or deposit of new matter in its vicinity,' as in carcinoma (West). This condition is described as *corroding ulcer of the os uteri*. The symptoms present in cases of this description are not distinctive. Recent writers do not confirm the observations of Sir C. M. Clarke, that the pain is peculiar in these cases. So far as the results of digital examination are concerned, corroding ulcer is characterised by absence of induration in the neighbourhood, by absence of fixation of the uterus, and by the sharpness of the margin of the ulceration. It is an interesting fact that corroding ulcer differs from cancer in respect to its fatality and duration. The observations hitherto made appear to indicate that the disease may continue for some years, indeed for several years. Dr. West believes that the affection ought to be classed with rodent ulcers. On the whole it appears right to consider it a form of cancer.

The diagnosis of the *cauliflower excrescence of the os uteri*, and of the *medullary tumour of the os uteri*, will be gathered from the description of the physical characters of these conditions at p. 652.

*Use of the speculum in the diagnosis of cancer.*—But little advantage can be derived from the use of the speculum in cases of advanced cancer of the uterus, the diagnosis of which, by the aid of digital examination alone, is not usually attended with difficulty; and, unless employed with great care, the use of the speculum may, under such circumstances, occasion hæmorrhage, and produce mischief of other kinds.

When, however, the os uteri is found on digital examination to be indurated and irregular, and when there is doubt as to whether cancer in its first stage may or may not be present, the use of the speculum may be the means of resolving that doubt. The physical condition of the os and cervix uteri, as felt by the finger, in the early stage of cancer, has been already fully described; it only now remains to give an account of the appearances presented to the sight in such cases.

Respecting the *colour* of the surface in induration due to cancer, there is a difference of opinion; and this arises from the fact that the first stage of cancer of the uterus so very rarely comes under observation. Supposing cancer to be present, and the ulceration

to have only just commenced, the ulcer will be found to have peculiar characters: it is excavated and depressed below the surface, the edges irregular, jagged, and somewhat tumid, and sharply defined. In chancre, the ulcer is distinguished by its being more superficial, by the absence of enlargement, and induration of the tissues beneath and around, by the absence of general signs of cancer, and by the effects of anti-syphilitic treatment.

Judging by ocular inspection alone, there are undoubtedly cases in which difficulty might occur in deciding between cancerous ulceration and ulceration due to other causes; but it cannot be too frequently repeated that it is by combination and comparison of the general and particular data that a diagnosis must be arrived at. In the case of suspected cancer, more can be learnt from digital examination than by the most careful use of the speculum.

The appearances presented by the os in cases of *cauliflower excrescence of the os uteri* are described by Sir C. M. Clarke as follows: 'There is a striking resemblance between itself and a portion of the upper surface of a cauliflower or a head of brocoli. The surface is granulated, and it consists of a great number of small projections, which may be picked off from the surface as the granules may be detached from the vegetable.' The surface, as seen by the aid of the speculum or otherwise, is of a bright red colour. It is very delicate, and the least touch sometimes suffices to make it bleed. Hence, if the speculum be used, great care must be exercised not to injure the surface. A digital examination affords most conclusively the desired information.

#### TREATMENT.

The *medical* treatment of cancer of the uterus has hitherto proved a failure; Mr. John Clay's remedy, one of the most recent of the medicines recommended, Chian turpentine, having proved to have little or no efficacy after an exhaustive trial in the wards of the Middlesex Hospital.<sup>1</sup>

In regard to preventive treatment, up to a recent date nothing of a practical character had been suggested. It appears, however,

<sup>1</sup> For Mr. Clay's paper on the 'Treatment of Cancer of the Uterus by Chian Turpentine,' see *Lancet*, March 27, 1880. See also 'On Chian Turpentine and its uselessness in Cancer,' by Henry Morris, M.B. (*Lancet*, Nov. 27, 1880), in which paper are related twelve cases treated by it without benefit at the Middlesex Hospital.

probable that in the future lacerations of the cervix may be considered sufficiently important as possible causes of cancer to induce the practice of repairing such injuries, if for no other reason. It is the fact, at all events, that in America one of the reasons for repairing such lesions is the probability of preventing the occurrence of cancerous disease of the os uteri by the operation in question (see p. 646). It must be conceded, at all events, that a raw, imperfectly healed surface, exposed continually to friction, and in a more or less constant state of irritation, presents a condition likely to favour the origination of a morbid or special nutritive action such as is observed in cases of cancer.

Respecting the treatment of cancrioid of the uterus (cauliflower excrescence), most authorities are agreed as to the propriety of removing the diseased structure when the disease is limited to the os uteri, and the uterine tissue above is not affected. Those cases are most favourable for operation where the vaginal portion—at its junction with the vagina—is not thicker than usual, and where consequently the tumour alone constitutes the disease. The operation may be done also where the cervix is a little enlarged; here the prospect of arresting the disease would be a small one, and the benefit of the operation would be temporary. That the disease may be arrested by amputating the cervix has already been stated. In other cases, while the patient derives advantage from the operation for a time, the disease attacks the body of the uterus a little later. In many cases cancrioid of the os is not recognised until the disease has already spread to the body of the uterus; in some of these cases even temporary alleviation of symptoms follows removal of the decomposing and discharge-secreting mass which is filling up the vagina.

As a palliative measure frequently, as a curative measure occasionally, amputation of the cervix uteri in cases of cancrioid of the os uteri is a valuable operation; it may prevent a fatal result altogether, it will almost certainly postpone that fatal result, even when inevitable. The bleeding and the copious exhaustive discharge are at once arrested. The patient would die, or might die, from continuance of these; and, for a time at all events, this source of danger is removed, and comfort and ease are secured to the sufferer.

The *écraseur* is the best instrument for the operation. The chain or the wire rope may be used; the latter is best when the pedicle is a short one, or when the uterus is fixed. The scissors are preferable to the knife if the *écraseur* cannot be employed.



The galvano-cautery is a valuable means of removing the cervix in such cases. As pointed out by Byrne and Goodell, the wire should not be made too hot, and the removal should be effected slowly and deliberately. The benzoline (Paquelin's) thermo-cautery is a most valuable instrument for such cases. There is an objection to drawing down the uterus more than can be avoided. Sir J. Y. Simpson believes, probably with reason, that the dragging down of the uterus has been the cause of that fatal shock which has followed the operation in one or two instances. Otherwise the operation is perfectly free from danger. Perchloride of iron suspended in glycerine should be applied on a piece of lint to the cut surface, and the vagina carefully plugged with wetted cotton-wool or other material, if there be any tendency to hæmorrhage. (Other particulars concerning amputation of the cervix will be found at p. 411.)

There are other cases of cancer of the uterus where extirpation of the disease is undoubtedly the best treatment, viz. where the vaginal portion or parts thereof are infiltrated with medullary cancer, the cervix itself at the point of reflection of the vagina appearing sound. The operation has been done but little, owing to the fact that the disease is rarely diagnosed at this early stage. I have amputated the cervix in a few cases of this kind, however, and at the present day there is a growing feeling in favour of excision of the cervix whenever the diagnosis is established.

Dr. Marion Sims adopts a procedure which in his hands has appeared to give good results. He excises the cancerous growth at the cervix uteri and continues the excising process, by uterotome, scissors, and cutting curette, a little beyond the point where the healthy tissues are reached. The surface exposed is carefully packed over with styptic cotton.

Dr. Lombe Atthill states that he has adopted Dr. Marion Sims's plan in two cases with great benefit, and he considers it a valuable procedure when the disease is detected early. Dr. Playfair states also that he has found Sims's method feasible and advantageous.

Dr. W. H. Baker<sup>1</sup> (Boston, U.S.A.) has practised very successfully a modification or extension of Dr. Marion Sims's operation. The cervix is seized and drawn down. The portio vaginalis is then cut into anteriorly with scissors, and the supra-vaginal anterior cervix separated from the bladder by scissors and forefinger. The same incision is then made posteriorly, and the posterior supra-vaginal cervix separated from peritoneum to level of internal

<sup>1</sup> 'Treatment of Cancer of the Uterus.' *Amer. Journ. of Obst.* April 1882.

os uteri. Next the cervix is separated at the sides. This being done the uterotome is employed, and a funnel-shaped portion of the body of the uterus is cut out. This is like Sims's operation, with the exception that it is here possible to remove more of the body of the uterus. The result is that the cervix is entirely removed, as well as nearly or quite one-half of the body of the uterus. The actual cautery at a red heat is then everywhere applied, which requires time to do effectually. Perfect quiet, catheter every six hours, opiates to confine bowels for ten days. In twelve cases of operation, in cases where the disease appeared capable of entire removal, the following were results: Seven were living and well after periods of twenty-nine, twenty-seven, twenty-two, twenty-one, eighteen, eighteen, and eleven months respectively.

The removal of the entire uterus for cancer has been of late rather frequently performed. Dr. Blundell in 1828 removed the uterus *per vaginam* in three cases. Freund of Strasburg has lately removed the uterus by abdominal section in a considerable number of cases. In Sept. 1878<sup>1</sup> Freund had operated ten times with five deaths.

The method adopted by Freund is as follows: The abdomen is opened as in ovariectomy. The uterus is drawn up out of the pelvis by means of a needle and thread passed through the fundus of the uterus. Before the uterus is removed three ligatures are inserted on each side, securing the broad ligament in three divisions, and when the uterus has been cut away the ends of these ligatures are brought out at the vagina. The peritoneal edges of the broad ligaments are also secured by sutures so as to more completely close the aperture between the vagina and abdomen.<sup>2</sup>

One of the difficulties attendant on the extirpation of the uterus is the liability to ligature the ureters. In two cases which have been related this occurred.

The operation has undoubtedly been performed successfully in a certain number of cases. The results obtained by other operators have not been so good as those of Freund, and probably the operation is capable of being made less immediately dangerous than it at present appears to be. We are yet, however, not in possession

<sup>1</sup> *Klin. Vorträge*, No. 133, for April 1878; see also *Obst. Journ.* No. 72, p. 817.

<sup>2</sup> See Mr. Spencer Wells's Lectures, Roy. Coll. of Surgeons, *Brit. Med. Journ.* July 1878.

of facts which are encouraging as to the final result of the operation, or as to its effects in procuring a notable prolongation of life.

As a *cauterising application* in cases of cancer of the cervix uteri, bromine in solution has been successfully used by Dr. Routh and Dr. Wynn Williams. The method of employing it, as described by Dr. Williams,<sup>1</sup> is to inject into the tissues of the affected part a strong solution of bromine in spirit (twelve grains to a drachm) by means of a syringe, at properly selected situations. The vagina requires to be well protected from the action of the caustic, and it is injected about half an inch deep. Disintegration of the parts injected rapidly follows. The bromine must be previously carefully mixed with the spirit. The syringe is of glass with a platinum point. For acting on a broader surface cotton-wool wrapped round a piece of stick and dipped in the solution; or a piece of cotton-wool soaked therein and kept in apposition by means of a little gutta-percha cup, are employed. In all these procedures the vagina is protected by cotton-wool soaked in solution of carbonate of soda. Following the treatment a weaker bromine solution is used as a lotion daily.

We now come to the question of the palliative treatment of cases of uterine cancer, where surgical measures are inapplicable. There are three conditions to the relief of which our attention is necessarily more particularly directed—the pain, the hæmorrhage, and the discharge; and, besides relieving these, we have to devise means for maintaining the functions of the body generally in a state of activity, and for dealing with the many secondary evils likely to present themselves in the course of this disease.

The *hæmorrhage* is to be checked, if slight, by injections of iced water into the vagina and into the rectum; if more severe, by application of perchloride of iron or tannin, and by the actual cautery, or, in very severe cases, by plugging the vagina, using a saturated solution of perchloride of iron in glycerine, the solution being applied by means of a sponge to the bleeding surface, and withdrawn subsequently by means of a string attached to the sponge (Simpson). Tannin in a fine powder, or tannic acid, may be applied through a small tube, or, better still, in form of a pessary. Tincture of matico is highly spoken of by some authors. If fluids are injected to check the hæmorrhage, care must be taken that they actually come into contact with the bleeding surface.

<sup>1</sup> *On Cancer of the Uterus, etc.* Renshaw, 1868.



In cases of cauliflower excrescence not admitting of amputation of the cervix, the soft bleeding masses have been sometimes broken up with the fingers, and tincture of iron injected into the centre, and with the effect of checking hæmorrhage and discharge. Dr. Hicks states that he has found a saturated solution of alum holding in suspension tannic acid, applied every day, very effectual in reducing the more tender parts of the tumour in cases of cauliflower excrescence. In some cases which have fallen under my own notice, I was able to effect the same object by applying daily a sponge dipped in strong solution of lunar caustic. To *prevent* hæmorrhage, the patient should, whatever be the nature of the disease, be kept quiet, and especially before and during the catamenial period. Brandy or other stimulants must be given to sustain the patient's strength; and very considerable quantities may be necessary to avert instant dissolution when the hæmorrhage is very profuse. Opium may be very advantageously given at the same time.

The *discharges* present in cases of uterine cancer are often very offensive, owing to the decomposition of the detritus from the ulcerated surface. The frequent use of the douche, by means of which a stream of water is made to pass gently over the affected surface, is the best means which can be adopted for obviating the unpleasantness of the discharge in ordinary cases. Care is very necessary not to push the extremity of the tube against the ulcerated surface, or bleeding may occur. The washing out of the vagina should be performed frequently. The temperature of the water used should be that which is most grateful to the patient. It is often necessary to use a disinfecting fluid as an injection in order to get rid of the offensive fœtor. For this purpose diluted carbolic acid, carbolised oil, Condy's fluid, chloralum, are all available. Creosote may also be mentioned as a powerful deodoriser. To render the discharge less offensive, frequent ablutions with or without the use of disinfectants are very necessary; other indications are thus at the same time fulfilled.

The *pain* present in cancer of the uterus is very severe, often exceedingly so, and it must be relieved. For this purpose opium, in that form which is found by experience to be most suited to the patient, must be given, the dose being regulated and the form varied according to circumstances. It is not uncommonly found necessary to give opium in very large doses, the patient having become so habituated to its use that a small dose has no effect whatever. Opium is often conveniently given in form of supposi-

tory or pessary : I have found it most effective when administered in a lavement. Opium, in some form or other, is generally necessary, but other medicines are frequently of great service as accessories. Ether, chloroform, or the two latter combined, cannabis indica, conium, hyoscyamus, etc., are all and each of them of use in certain cases. The application of carbonic acid to the ulcerated surface was suggested by Sir J. Y. Simpson.

The *general nutrition* of the patient demands careful attention. The digestive organs are frequently in a very disordered state, the patient having little or no appetite, and the bowels being extremely constipated. The first and most important part of the treatment consists in feeding the patient frequently and with easily digested food. And we can only find by experience what is best. Milk is often a valuable article of diet in such cases ; wine or other alcoholic beverages are generally required. For the relief of sickness and thirst, ice placed in the mouth frequently is most beneficial. The bowels require careful attention ; small doses of castor-oil, frequently given, are the best means of inducing regularity in this respect, but occasional copious enemata are often necessary to unload the distended rectum. Two or three drachms of Rochelle salt, with a little tincture of senna, form a useful occasional aperient draught. The act of defæcation is often exceedingly painful, and patients postpone it as long as possible ; the evil may proceed to a very extreme extent if the patient be not watched.

The state of the urinary organs frequently calls for relief. In those distressing cases where towards the end of the disease fistulæ form between the vagina and the bladder, or between the uterus and rectum, or vagina and rectum, but little can be done except to observe great cleanliness. For the relief of the irritability of bladder often present, Dr West thinks highly of the use of Vichy water. Uva ursi or pareira, with a little liquor potassæ, are medicines of established utility in such cases. The tritium repens, highly recommended by Sir Henry Thompson in the treatment of cases of irritable bladder in the male sex, will be found useful.

The question as to the propriety of giving, to the patient herself, expression of our opinion as to the prognosis in a case of uterine cancer, is a matter of great delicacy and importance. Even in cases where there is literally no hope of saving life beyond a limited time, it is yet occasionally difficult and even improper to

say so to the patient. There are few individuals possessed of sufficient fortitude to be told, at once, that they must necessarily die; and in many cases, to deprive the patient of all hope is to still further shorten her brief existence. It is hardly necessary to urge the importance of abstaining from giving, *in any degree*, an unfavourable prognosis in cases where the diagnosis of cancer is not very well established. Experience has shown that the best observers have been deceived in their prognosis, the case not always turning out so unfavourably as they had expected. It is easy to decide too soon; by waiting a little doubts are gradually dispelled.

The question of the treatment of *cancer of the vagina* and *cancer of the bladder* requires no extended notice. The treatment required in cases of cancer of the vagina is identical with that of cancer of the uterus, the symptoms being essentially the same. Little benefit can be expected from surgical treatment. In *cancer of the bladder*, generally secondary to cancer of the uterus or vagina, the treatment, beyond what is necessary in all cases of cancer, consists in relieving the patient as much as possible from the sufferings attendant on the irritable condition of the bladder usually present, and in providing means for remedying, as far as possible, the inconvenience arising from fistulous openings in the vesico-vaginal septum. Occasionally it has been found necessary to perforate the bladder when the orifice has been occluded by cancerous growths.

#### ASSOCIATION OF PREGNANCY WITH CARCINOMA OF THE UTERUS.

It occasionally happens that this association is met with, and the various important questions arising out of such association have to be considered.

Recently (on October 11, 1881) the following important case came under my notice.

The patient was 37 years old. She had had five children; the youngest was sixteen months old, but there had been a bad miscarriage ten months ago. The patient was, at the time she presented herself to me, again pregnant, probably five months. [It proved to be nearly six months.] The patient was unmistakably affected with epithelioma of the cervix uteri, the vaginal portion being hypertrophied and presenting a very distinct warty projection running round it like an



irregularly shaped cord just outside the orifice of the os uteri, but the tissues above the vaginal portion seemed to be free from infiltration. She was in a very depressed and prostrate condition, having had little sleep, and having suffered from almost continuous pain in the pelvic region for several weeks. There was a brownish irritating and offensive discharge. It was evident that the disease was rapidly progressing, but that as yet it was limited to the cervix uteri. The patient had already seen Mr. Spencer Wells, and, in accordance with my advice, a consultation was held with him, the object being to ascertain what was best to be done. One course of action which suggested itself was the speedy induction of abortion, followed as quickly as possible by amputation of the cervix uteri. Another was to remove the whole uterus at once. A third course would have been to allow pregnancy to proceed to the viable period, then to effect delivery, and afterwards deal with the cervical disease. The objections to this latter course were that, the disease being in rapid progress, it was probable that delivery *per vias naturales* of a viable child could not be counted on. The cervical infiltration and thickening were fast increasing, and the operation of vaginal delivery would imply laceration of the cervix, and other possible dangers, while in order to secure a live child the Cæsarean section might even be rendered necessary. Moreover, the delay in procedure would allow the patient to be subjected for some time longer to the deadly influence of the disease. The first and second procedures were discussed. On the one hand was the extreme danger of the immediate excision of the whole uterus, giving, however, a better chance, in the event of the patient's surviving the operation, of a considerable prolongation of life. On the other, the possible bad effects of a premature induction of labour, followed by necessity for the further operation of excision of the cervix. Mr. Wells expressed himself very hopefully as to the result of the immediate excision plan; and after due discussion it was resolved that Mr. Wells should undertake the operation. Accordingly, on October 21, 1881, Mr. Spencer Wells extirpated the uterus entire by the abdominal method. The case was reported in full to the Royal Medical and Chirurgical Society, November 22, at which time the patient was reported as quite convalescent from its effects.

The remarkably successful result of this operation, which is the first in which the gravid uterus had been removed entire, in this country, will doubtless encourage further attempts to deal with similar cases in a radical manner. And the opinions expressed on the reading of this case were of a highly approving character. The success of Freund's late operations, together with those of Hegar and Kaltenbach for the removal of the non-gravid carcinomatous uterus, encouraged the adoption on the above occasion of the procedure of removing the whole uterus. The success which has attended what is termed Porro's operation was a further

incentive. Porro's operation consists in removal of the uterus from above, in cases of pelvic deformity, and as an alternative to the Cæsarean section; but in Porro's operation the cervix uteri, or the greater part at all events, is not removed. In the case on which Mr. Spencer Wells and myself consulted together, the operation consisted in the removal of the *whole* of the uterus. One of the greatest dangers of the operation is that of injuring the ureters. In Mr. Spencer Wells's method of tearing the uterus away rather than cutting, it seemed to me that this danger was materially reduced.

The conclusion to be drawn from the above case is that the gravid uterus at six months of pregnancy may be entirely removed and the patient recover from the effects of the operation. It is true that the case was a favourable one for operation, but it seems on the whole probable that similar cases are not unlikely to be met with again.

## CHAPTER XLIV.

TUBERCLE OF THE UTERUS: DISTENSION OF THE UTERUS BY FLUID (HYDROMETRA AND HÆMATOMETRA) OR BY GAS (PHYSOMETRA).

TUBERCLE OF THE UTERUS.—Pathology and Treatment.

DISTENSION OF THE UTERUS WITH FLUID (Hydrometra and Hæmatometra).—Pathology and Treatment.

DISTENSION OF THE UTERUS WITH GAS (Physometra).

## TUBERCLE OF THE UTERUS.

THIS is an exceedingly rare disease. When tubercle is found in the uterus, it is generally present in other organs. There appears to be a particular and unusual tendency to the formation of tubercle in the uterus after parturition, and during the time the uterus is undergoing that reduction in bulk and change of texture peculiar to this period.

The part of the uterus which is usually the seat of tubercle is the inner surface—when occurring after child-birth, at the seat of the placental insertion—and from the mucous lining it spreads into the thickness of the uterine wall. The final effect may be a considerable increase in the bulk of the uterus. The tubercular matter appears in the form of small greyish or greyish-yellow granulations; the mucous lining is also much thickened and looser in texture than usual. There is a discharge from the uterus of a dirty yellow or brown colour. The disease does not appear to be attended with much pain.

Rokitansky relates an important case where acute tuberculosis of the uterus set in in a patient æt. 34, immediately after delivery of an eight months' foetus,<sup>1</sup> death occurring at the end of nineteen days. H. Cooper<sup>2</sup> also details an interesting case in which rupture of the uterus occurred in the third month of pregnancy, due to

<sup>1</sup> *Allg. Wien. Zeit.* 1860, No. 21.

<sup>2</sup> *Un. Méd.* 1859, No. 51.



considerable tuberculosis of the uterus. Mr. Tomlinson<sup>1</sup> relates a case of tuberculosis of the uterus of three years' duration, the patient æt. 55, and the uterus considerably enlarged.

#### TREATMENT.

Tubercle of the uterus would be treated, in cases where it is detected, on general principles. Careful and good feeding should form an important part of the treatment. Young women recently delivered, and of a phthisical tendency, should be carefully looked after, and great care taken to restore any lost power by suitable diet and regimen. Of the local treatment we can scarcely speak, experience being wanting, but the injection of weak solutions of iodine or bromine into the uterine cavity would probably constitute the best application. It would be requisite to have the os well dilated prior to such a procedure.

#### DISTENSION OF THE UTERUS WITH FLUID (HYDROMETRA AND HÆMATOMETRA).

Apart from pregnancy, an essential part of which is the presence of a considerable quantity of fluid—the liquor amnii—in the uterus, we have cases in which the organ is found to contain fluids in considerable amount. The old terms *hydrometra* and *hæmatometra* implied presence respectively of watery fluid and blood in the uterine cavity.

Accumulations of fluids in the uterus not unfrequently occur in association with closure of the outlet, narrowing and stricture of the cervix, agglutination of the os uteri, flexion of the uterus, presence of a tumour in the cervix or lower part of the uterus, the most common of these causes being chronic flexion of the uterus (see 'Flexions'). The quantity of fluid so accumulated in the uterus may be considerable, but ordinarily it is not very great. The due appreciation of these cases is a matter of much practical importance. An offensive persistent leucorrhœa is not uncommonly one of the results of these accumulations of fluid in the uterus.

The most considerable instance of hæmatometra is that met with sometimes in young women soon after the arrival of puberty, and due to retention of menstrual fluid in the uterus, the hymen being imperforate, or the os uteri itself congenitally occluded.

<sup>1</sup> *Obst. Trans.* vol. v.

Here the uterus may attain such a size as to reach to the umbilicus ; the Fallopian tubes are not seldom also distended, and one occasional result is passage of some of the blood into the peritoneal cavity ; a more rare event is rupture of the uterus itself into the peritoneum or into the bladder or rectum. Bernutz and Goupil<sup>1</sup> have devoted much attention to the study of the accidents arising out of these and other effects of menstrual retention.

It is remarkable that the uterus tolerates the presence of a fluid in its interior very differently in different persons. More explainable is the fact that, when the distension is not considerable, it excites more pain and irritation than when the organ is very greatly distended ; the presence of a small quantity of blood may in cases of dysmenorrhœa give rise to great pain, the uterus acting vigorously in seeking to expel it. When, however, the distension is very great, it is usually accompanied by such a degree of thinning of the walls of the uterus, that the organ has little power of contraction left.

As an instance of distension of the uterus from menstrual retention, the following interesting case, recorded by Prall of Hamburg, may here be quoted. The patient, æt. 43, previously regular, ceased to be so, and simultaneously symptoms of pregnancy set in. At the end of three months the uterus was enlarged, the os occluded, and the uterus contained a quantity of bloody fluid. It was imagined that the case was one of pregnancy with retroversion of the uterus ; attempts were made to reduce this, but the force used had the effect at once of relieving the patient and showing the nature of the condition present. The pressure employed forced the blood through the occluded os uteri.<sup>2</sup>

Amputation of the cervix uteri has been followed by hæmatometra. Considerable distension of the uterus with serous fluid is met with chiefly in women advanced in years. An instance of this kind was recorded by Dr. A. T. Thomson, in which the uterus contained eight quarts of a dark-coloured brown fluid.<sup>3</sup>

#### TREATMENT.

The great object is to evacuate the contents of the uterus. This is not always easily done. When the lips of the os uteri are agglutinated, a careful examination is required to find out the

<sup>1</sup> *Clinique Méd. sur les Maladies des Femmes*, English translation by Dr. Meadows. (New Syd. Soc.)

<sup>2</sup> Schmidt's *Jahrb.* vol. cxvi. p. 65.

<sup>3</sup> *Med.-Chir. Trans.*

precise situation at which to make a puncture. In such instances the cervical cavity is more or less obliterated, so that the uterine cavity is soon reached. When there is stricture higher up in the cervical cavity, dilatation by means of tents, aided by slight incisions, may be advantageously had recourse to. When the case is one of retroflexion, the restoration of the organ to its normal shape, by pressure on the fundus from below, or by use of the sound, usually suffices to allow the fluid to escape. When the case is one of ante flexion, a suitable mechanical treatment must be adopted (see 'Flexions').

After evacuation of the fluid, pressure and administration of ergot should be employed to aid the uterus in contracting.

Further remarks on the management of cases of occlusion of the os or cervix uteri will be found in the chapter on 'Dysmenorrhœa.'

#### DISTENSION OF THE UTERUS WITH GAS.

Well-authenticated cases of this affection are not many in number, but there can be no question that gaseous accumulations do occasionally take place in the interior of the uterus. The most common condition under which such accumulation has been noticed, is the presence within the uterus of a dead fœtus, or portions of the membranes which have been abnormally retained in the uterus after labours or miscarriages. The gas formed in the uterus under these circumstances is the result of the decomposition of the retained matters; it is fœtid; and the uterus at the same time may contain purulent detritus. Further, it appears necessary that, to produce this gaseous distension of the uterus, the orifice of the organ should, having been recently open, have become closed. It seems on the whole probable that, first, air must have obtained admission into the uterus; that, secondly, the os must have become plugged up or closed; and that decomposition must have then occurred, and thus given rise to the gaseous distension now alluded to. That air does frequently pass into the uterus immediately after the expulsion of the fœtus is a fact. It is evident, further, that, irrespective of labour or miscarriage, coagula undergoing decomposition in the uterus may generate gas, which may be retained and accumulate in the uterus, though the number of cases coming under this head are very few compared with those previously described. It has been supposed by some that the lining membrane of the uterus may secrete gas, but there



is no proof of this. In many of the cases recorded as cases of gaseous accumulation in the uterus, the only proof of such accumulation has been the passage of flatus from the vagina, which has been erroneously supposed to come from the uterus. In an interesting communication to the Obstetrical Society of London, Dr. Harley<sup>1</sup> related the particulars of a case where flatus was occasionally expelled from the vagina. He ascertained by experiment that the gas so expelled had been the moment before drawn into the vagina, as he believed, by a spasmodic alternate contraction and relaxation of the recti abdominis muscles. Dr. Gooch mentions a case in which the patient only expelled flatus while not pregnant, the expulsion ceasing when she became impregnated, and he cited this to prove that the flatus must have come from the uterus. This fact, however, affords no absolute proof of the truth of the explanation for which Dr. Gooch contends. It was more probably a case, such as that observed by Dr. Harley, of alternate admission and expulsion of air from the vagina.<sup>2</sup>

#### TREATMENT.

The obvious cure for this condition would be the evacuation of the gas by means of a long gum-elastic or other rigid tube, which would have to be introduced carefully through the cervix uteri. A tight bandage and cold affusions externally would be useful subsequently.

<sup>1</sup> *Obst. Trans.* vol. iv.

<sup>2</sup> See also a paper on this subject by Dr. Rasch, *Obst. Trans.* vol. xii. p. 281.

## CHAPTER XLV.

## DISEASES OF THE FALLOPIAN TUBES.

Tumours of the Fallopian Tubes, Fibroid, Tuberculous—Cyst Formations—Distension of the Tube with Fluid—Distension of the Tube with Blood—Puriform Accumulations in the Tubes—Fallopian Pregnancy—TREATMENT.

THE diseases of the Fallopian tubes do not very frequently present themselves before us during life, although various alterations are often observed after death in reference to the shape, position, permeability, etc., of these ducts. The following comprise the more important of these abnormal conditions.

## TUMOURS OF THE FALLOPIAN TUBES.

*Fibroid growths* may be found in such a position as to block up the passage, and occlusion of the tube sometimes thus results. *Tubercle* of the tubes has been met with, so also *cancer*. *Cyst formations* are more doubtful: they might readily be confounded with distension of the tubes themselves.

## DISTENSION OF THE TUBE WITH FLUID (FALLOPIAN DROPSY).

Tumours constituted by distension of one or both tubes with fluid are not so very uncommon. They are met with chiefly in old people, and are accompanied with closure of one or both extremities of the tube. The quantity of fluid may be so great as to distend the tube to the size of the fœtal head or even larger (see fig. 187 from Hooper). The fluid itself is usually of a watery character mingled with flaky substances of varying consistence. It is a curious circumstance that both tubes have been found simultaneously and about equally affected. One point of interest in connection with the subject is the physical resemblance between such tumours and cystic tumours of the ovary.

## BLOOD ACCUMULATIONS IN THE FALLOPIAN TUBES.

There are reasons for the belief that the Fallopian tubes are not very unfrequently distended with blood to a slight extent in women during menstrual life. In some such cases the blood so accumulated finds its way into the peritoneal cavity (see 'Peri-uterine Hæmatocele'). The blood may have three sources, viz. the uterus itself, the lining of the tube, or the Graafian follicle. It may be produced by imperforate hymen, or by imperforate os uteri, and may occur in all cases when the outlet of the uterus below is occluded in any way. Thus it may be associated with menstrual retention; the blood secreted in the uterus, or in the tube

FIG. 187.<sup>1</sup>

itself, or possibly blood arising from the ovary, distending the tube in common with the uterus. In a case of menstrual retention with distension of the uterus, the presence of a tumour in the pelvis by the side of the uterus, and having the shape of the enlarged Fallopian tube, would suggest the presence of distension of the tube with blood. But the Fallopian tube may be distended with blood in cases where there is no distension of the uterus of a like character. A fibroid tumour situated at the junction of the tube and the uterus, and blocking up the canal, was the cause of the distension in a case related by Favel, and quoted by Bernutz and Goupil.<sup>2</sup> Occlusion of the tube at this situation from other

<sup>1</sup> Fig. 187 (after Hooper), Fallopian dropsy.

<sup>2</sup> *Op. cit.* tom. i. p. 168.



causes may doubtless produce the same result. Dr. Farre states that he has found accumulations of blood in tubes closed at both ends, and in cases where death has occurred during a menstrual period; conclusively showing, according to his opinion, that the menstrual fluid is supplied in part by the wall of the Fallopian tube.<sup>1</sup>

#### PURIFORM ACCUMULATIONS IN THE FALLOPIAN TUBES.

These are the result of inflammatory action in the tubes or the uterus; the period of childbed is the one during which such formations are most liable to occur, but they may follow inflammation of the uterus, or result from operations on the generative organs; they may occur idiopathically, and in connection with chronic inflammation of the interior of the uterus; they may also result from stricture of the os uteri, whereby escape of fluid formed in the uterus is prevented. In the puerperal class of cases, pus may collect in and distend the Fallopian tubes, and may finally regurgitate into the peritoneal cavity. This is one of the modes of origin of puerperal peritonitis.<sup>2</sup>

#### PAPILLOMA OF THE FALLOPIAN TUBE.

An interesting case is related by Mr. Alban Doran<sup>3</sup> in *Pathological Transactions*, of the following kind:—

The patient, single, æt. 50, had suffered from menorrhagia after amenorrhœa, next symptoms of inflammation of right ovary. Then followed pleural effusion requiring tapping; after that ascites. She was tapped four times for the ascites. After the last tapping a hard nodular mass was found by Mr. Spencer Wells behind the uterus. An operation was performed, and, after removal of seventeen pints of fluid, an orange-sized tumour, consisting of the greater part of the right Fallopian tube, was removed, together with the adjacent adherent ovary. Recovery occurred. The tumour consisted of an elongated oval tumour three and a half by two inches, and was found to be the Fallopian tube dilated and filled with cauliflower excrescences, covered with a mucoid secretion, which issued from the fimbriated extremity where there was a bristle-sized aperture. The excrescences grew from all parts of the dilated tube; they were covered with columnar epithelium. Mr. Doran considers the

<sup>1</sup> *Op. cit.* p. 618.

<sup>2</sup> See an interesting paper on this subject by Dr. Barnes, *Obst. Trans.* vol. iii. p. 419.

<sup>3</sup> *Path. Trans.* vol. xxxi.

specimen as an unusually large example of a growth recognised before by Rokitansky and Hennig, and he believes they are produced by chronic inflammation. The secretion from the tube irritated the peritonæum, and caused ascites.

#### FALLOPIAN PREGNANCY.

This is to be considered a disease, and generally a fatal one. But the subject is one which falls out of our province. Rupture of the tube and fatal abdominal hæmorrhage are the usual results.

#### TREATMENT OF DISEASES OF THE FALLOPIAN TUBES.

In some cases serous collections within the Fallopian tubes have been evacuated by means of a fine trochar and canula through the vagina.

The cases are few, however, in which surgical procedures are likely to be adopted, in consequence of the comparative rarity of disease in this locality, and also in consequence of the difficulty of their diagnosis. The case above related in which Mr. Spencer Wells excised a dilated tube is a very interesting and exceptional one.

A curious case is recorded by Dr. Baumgärtner of Baden Baden.<sup>1</sup> A patient who had had ovariectomy performed, and subsequently gastrotomy, in order to relieve pain produced by adhesion of pedicle to bladder, became later on affected by a quite unendurable pain in the ovarian region. Gastrotomy was a third time performed, and the right Fallopian tube, being found distended and on the point of bursting, was removed, together with the ovary. Cure.

In cases where the tubes are distended with pus, as in a case of puerperal metritis, great care would be required to maintain rest, lest the contents of the tube be poured out into the abdominal cavity.

In cases of *Fallopian pregnancy*, if it were possible to make an exact diagnosis of these cases of rupture and hæmorrhage during life, it would undoubtedly be better to open the abdomen and endeavour to secure the bleeding vessels, than to allow the patient to die from hæmorrhage. No operation of the kind has ever been attempted, but the subject has formed matter of discussion on more than one occasion at meetings of the Obstetrical Society of London. The chief difficulty lies in the diagnosis, for, until the

<sup>1</sup> *Berlin. Kl. Woch.* 1879.

patient is dead, the real nature of the case is not generally detected ; such, at least, has been the experience of most practitioners. Increased accuracy of diagnosis of the diseases of the female generative organs may, perhaps, result in the more frequent recognition of this formidable accident sufficiently early for measures to be devised and carried out by which life may be saved.



## CHAPTER XLVI.

DISEASES OF THE OVARIES: OVARITIS: DISPLACEMENT OF THE  
OVARY: NEUROSES: BATTEY'S OPERATION

## ACUTE OVARITIS AND ABSCESS OF THE OVARY.

CHRONIC OVARITIS.—Obstructed Ovulation, its Effects and Causes—Changes in the Graafian Follicles—Congestion of the Ovary—Effects of long-standing Chronic Ovaritis—Etiology. Sexual Excesses—Gonorrhœal Disease—Symptoms and Signs of Chronic Ovaritis—Pain, Tenderness to Touch—Diagnostic Signs. Treatment of Acute Ovaritis—Treatment of Chronic Ovaritis—General Measures—Battey's Operation, Cases for which it is suited.

DISPLACEMENT OF THE OVARY.—Symptoms, Treatment.

NEUROSES OF THE OVARY—Mental Disturbances—Neuralgia—Nymphomania—Hysteria and Hystero-Epilepsy.

BATTEY'S OPERATION.—Historical and Statistical Criticism.

## ACUTE OVARITIS AND ABSCESS OF THE OVARY.

This is a condition rarely met with in practice. Sudden suppression of the menses, from chilled or wetted feet, has appeared to lead to it, but such an occurrence is extremely rare. In connection with the puerperal state it is more common; we then generally find it associated with a pyæmic condition, with inflammation of the uterus, and marked changes in the large uterine veins. Pelvic abscess, which may follow on parturition, or on any operative procedure on the generative organs, generally begins in the neighbourhood of the ovary, and may involve this organ. Acute inflammation and abscess of a previously healthy ovary is a condition hardly known. But when the ovary is affected with cystic disease the cysts may inflame and suppurate.

## CHRONIC OVARITIS.

The process of ovulation involves rupture of the surface of the Graafian follicle, passage of its contents into the Fallopian tube, and subsequent closure of the opening (see p. 18). This physiological process is liable to be disturbed. Thus the rupture may be impeded by previous inflammatory thickening of the surface of

the ovary. This thickening may be produced by previous pelvic inflammatory action, which latter may be set up in many ways. Pelvi-peritonitis (Bernutz and Goupil) is a condition which may be produced by escape of blood from the ovary or secretions from the Fallopian tubes into the peritoneal cavity near the ovary, the ovipont being disturbed, and probably in other ways also. False membranes thus originating may obstruct ovulation or may disturb the normal ovipont.

When ovulation is obstructed, as a result of this other changes are likely to occur in the ovary itself—swelling, turgescence, thickening, degeneration, and other changes in the stroma of the ovary itself; and in process of time the result may be that the ovary is contracted, diseased in various ways, and the healthy development, maturation, and dehiscence of Graafian follicles materially interfered with. Doubtless also in some cases morbid actions originating in the stroma of the ovary give rise to alterations in the tissues of the organ. The Graafian follicles may become diseased before they reach the surface, or disease may attack them during their retrogressive changes. There is evidence that in some cases the ovarian stroma becomes broken up, atrophied, the ovary as a whole losing its proper shape and definite outline, and becoming fused as it were into the adjacent tissues by exudation formed over the ovary, the result of intra-ovarian or extra-ovarian morbid action.

Chronic ovaritis is a term which is employed to designate the various morbid processes enumerated in the foregoing paragraphs. Negrier<sup>1</sup> described the morbid changes in the follicles as ‘vesiculitis.’

Thus, obstructed ovulation may set up disease either in the Graafian follicles or in the intermediate ovarian stroma. The term ‘chronic ovaritis,’ as now employed, covers most of the morbid processes liable to occur in the ovary. It seems probable that the more common cystic diseases of the ovary have their origin in that form of ovaritis which is associated with obstructed ovulation. Facts which have come under my own notice lead me to suspect that chills during the process of menstruation are not unfrequently the cause of serious subsequent disease, the primary effect being folliculitis in that one particular Graafian follicle which is most enlarged and developed, and which is at or near the period of dehiscence at the time the chill is experienced.

<sup>1</sup> *Recueil des Faits pour servir à l'histoire des Ovaires et des Affections Hystériques de la Femme*, Angers, 1858.

*Congestion of the ovary* is a condition which precedes chronic ovaritis. The congestion may affect the whole organ, increasing its size and weight. Clinically it is a condition not frequently met with unless in cases where the ovary has become displaced. Cases are recorded, however, in which congestion, softening, and a semi-pulpy condition of the ovary have been met with after death.

A very important element in cases of chronic ovaritis is the condition of the nutritional functions. Thus, if the patient be tuberculous, the character of the ovaritis will probably be much affected thereby. Feebleness and weakness from any cause also will be likely to intensify it, and even to initiate it. A low form of chronic inflammatory action is liable to be set up under such circumstances, and normal ovulation does not occur either because the false membranes or adhesions prevent the access of the fimbriæ of the Fallopian tubes to the ovary, or because the fimbriæ are diseased or fixed, or because the ovary itself has either superficially or deeply undergone chronic inflammatory changes.

Other facts in connection with the history of chronic ovaritis have now to be stated. When the malady has existed for some time, the pain and distress thereby directly or indirectly produced is so great that the patient falls into a state of health of a very deplorable character. The misery involved in the continuance of the ovarian function under such circumstances led Dr. Battey of Georgia, U.S. of America, to adopt the plan of extirpating the ovaries in such cases. Cases of this advanced character are not very common. And it is very important to distinguish between severe cases of chronic ovaritis and chronic severe dysmenorrhœa due to some morbid condition of the uterus. The distinction is by no means easy in all cases.

*Etiology.*—Sexual excesses not unfrequently occasion chronic ovaritis. Sterility occurs as a further result of such excesses, the effect of which is probably to produce serious disturbances in the healthy maturation of Graafian follicles, to lead to their premature bursting, and to give rise to occasional failures of the ovipont—*i.e.* to escape of the contents of the follicles into the peritoneal cavity, and consequent irritation at that spot. Chills during menstruation, whether producing actual suppression of the catamenia or falling short of this, are undoubted causes of ovaritis. Exalted functional activity of the ovaries, which may be induced by defective moral training or early addiction to bad habits, may lead to serious chronic ovaritis.



Chronic congestion of the uterus is frequently accompanied by chronic ovaritis.

Gonorrhœal disease is undoubtedly a cause in some cases of ovarian disease. Ovaritis of gonorrhœal origin is liable to produce chronic inflammatory action in the ovary itself, but more particularly in the peritoneum near the ovary. Chronic pelvi-peritonitis with chronic ovaritis of a very serious and troublesome character may thus originate.

*Symptoms and signs.*—A common symptom is *pain* in the ovarian region.

The presence of pain in the ovarian region does not, however, prove that the ovaries are diseased, nor does it prove that they are even the seat of inflammation or irritation. Pain in these regions is more often due to disease of the uterus than to disease of the ovaries. Pain during menstruation also is much more commonly due to disorder of the uterus. In the chapters on ‘Uterine Flexions’ and on ‘Dysmenorrhœa’ this question has been fully discussed.

There is no doubt that cases present themselves, though probably comparatively few in number, in which the pain present is really connected with the ovaries and arises very possibly from what may be termed *difficult ovulation*.

To this class of cases possibly belong those which Dr. Priestley has described, in which, intermediate between the regular menstrual periods, there is felt every month a peculiar pain like that experienced at the monthly times, but without discharge. These are probably cases of difficult ovipont.

*Tenderness of the ovary to the touch.*—A vaginal or rectal examination is the best means for detecting actual ovarian tenderness. When the ovary is actually sensitive to the touch and persistently so, when it is manifestly swollen, the evidences are decided as to the presence of ovaritis. But tenderness and swelling are not always present. In some cases we find the ovary markedly hard, irregular to the touch and smaller than usual, or it may be indistinguishable on careful double examination, owing to the chronic inflammatory action having fused it to the adjacent tissues.

Tenderness in the lateral hypogastric or supra-inguinal region is, according to my experience, not by any means a sign of the presence of ovaritis. Pressure in this spot may give pain, but it may be found that on an internal examination the ovary is not tender at all to the touch. Supra-inguinal tenderness and swelling are really most commonly due to ante flexion of the uterus.

This is a fact which I have verified by repeated observation, and it is a most important one, for it has been held heretofore to indicate the presence of ovaritis. When ovaritis or ovarian congestion are really present, there is no doubt supra-inguinal tenderness liable to be observed: this is not disputed. Further, when pelvi-peritonitis is present, tenderness in the supra-inguinal region is liable to be noticed. The same remark applies to *swelling* in the supra-inguinal region. A tympanitic slight swelling is very liable to be observed in this region, particularly in cases of ante flexion, also in cases of pelvi-peritonitis. This swelling is not necessarily indicative of ovaritis. I have supposed it to be due to irritation of the peritoneum, produced by traction or stretching of the round ligament, consequent on the altered position of the uterus.

In cases of *acute* inflammation of the ovary, entire rest is essential. Leeches should be used in cases where the attack depends on a sudden chill, followed by warm and moist applications. In cases where gonorrhœal infection is believed to be the source of the mischief, leeches might still be useful at first, specific remedies being given later. When a puerperal cause is present, depletion is not indicated; the case is one of, or tending towards, septicæmia, and the indication is to support the strength of the patient rather than to remove blood. Rest, warmth by means of hot turpentine stupes, and a stimulating and nourishing diet, would be advantageously had recourse to.

Cases of *chronic ovaritis* must be treated with a view to the special requirements of the patient. In some cases immoderate sexual excitement has to be corrected, and a moral treatment enforced. The tendency to congestion of the ovaries may be diminished also under these circumstances by employment of cold affusions over the hips and lower part of the abdomen, by remedies and a regimen calculated to call the other functions of the body into active exercise. If there be no tendency to uterine displacement or flexion, the gymnasium, or equestrian exercise, or some active mental employment, necessitating also a tolerable amount of walking, may be recommended. Exercise is, under these circumstances, almost always attended with some degree of pain, and it is frequently necessary to keep the patient at rest for a time, before commencing exercise to any great extent.

Functional rest is more or less required in all cases. At the menstrual periods the patient should be ordered to remain on the couch or in bed, the apartment kept cool, and stimulating nourishment avoided.

Counter-irritation and sedatives constitute on the whole the best treatment for the ordinary run of cases. The tartar emetic ointment, or a liniment containing croton oil, may be rubbed in night and morning over the ovarian regions, and opiates sufficiently strong to relieve pain ordered. One pill containing half a grain of opium, a third of a grain of extract of Indian hemp, and one grain of camphor, may be given night and morning. Care should be taken that the bowels are relieved each day.

‘Battey’s operation’ is a resource available in cases of advanced or incurable chronic ovaritis. It has been performed for other reasons, but with those we are not concerned in this place. It would appear that it is indicated more particularly in cases where there is chronic ovaritis due to obstructed ovulation, from whatever cause, where other treatment has proved ineffectual. It will probably be employed in some rare cases where the continuance of the function of the ovaries is unbearable in consequence of the presence of incurable uterine disease. At present the ovaries appear to be credited with more than is their due in the origination (directly, at least), in that state of things for which Battey’s operation has been put in practice, but these cases will no doubt be more carefully discriminated in the future.

#### DISPLACEMENT OF THE OVARY.

The ovary is sometimes found to have left its ordinary position and fallen downwards, generally in the middle line, in the Douglas pouch. It there constitutes a tumour plainly distinguishable by vaginal examination, having the shape and size of the ovary, but not seldom much increased in size. It is usually very painful and sensitive to the touch. The causes of this prolapsus or descent of the ovary are various, but the most common cause appears to be retroflexion of the uterus. The fundus uteri may drag on the ovary, or the violent straining in defæcation which retroflexion of the uterus sometimes occasions may be the event determining the displacement. Having become prolapsed, the ovary may either remain in a mobile condition, or it may become adherent and fixed in its altered position by inflammatory exudation.

The symptoms produced by prolapsus of the ovary are, as a rule, very marked, and sometimes very severe. They consist in pain attendant on defæcation often amounting to torture, pain on walking, and general discomforts of various kinds. The symptoms, in fact, resemble very much those due to severe retroflexion of the



uterus. And when the two conditions—ovarian prolapse and retroflexion—are associated, the symptoms may be doubly intense. Various nervous reflex symptoms—*e.g.* severe hysterical phenomena—may be observed.

The treatment of prolapse of the ovary is sometimes a simple matter. Thus, if it be due to retroflexion of the uterus, and the ovary be free to move, a Hodge pessary may be found to be the cure for both displacements. But if the ovary be adherent, and, as it often is under such circumstances, inflamed, efficacious treatment is very difficult. The primary object should be to replace the prolapsed organ, and remove it from this very inconvenient position, which may be best done by some modification of the Hodge-shaped pessary carefully padded in the part liable to touch the ovary, or by a simple india-rubber ring pessary. Complete rest would be required while the inflamed and displaced ovary is thus being gradually pushed upwards out of the Douglas pouch, and the use of the pessary would be necessary for a considerable time to prevent liability to return of the displacement.

In certain severe cases Battey's operation has been performed, and the ovaries extirpated, for the cure of this displacement. Up to the year 1881 five such cases had been recorded.<sup>1</sup>

#### NEUROSES OF THE OVARY.

Cases not very uncommonly present themselves in practice in which a neurosis is present, traceable to some excitation or irritation present in the generative organs. The ovary and the uterus are the two principal organs, and the question arises whether the affection has its origin in the one or the other of these two principal locations.

The question has already been discussed at some length (see p. 527), and the share which the uterus has in the origination of these maladies has been defined. It remains to be stated what share the ovaries have in the origination of neuroses.

When the ovarian functions come to an end, or are in abeyance, uterine neuroses disappear or become much lessened in their intensity. But ovarian neuroses and uterine neuroses are nevertheless distinct the one from the other.

The ovaries appear to be the predominant organs in the female economy. One thing, at all events, is certain, that fecundation is inseparably connected with their existence and healthy activity.

<sup>1</sup> See Battey's *Report*, Int. Med. Congress, 1881.

It does not appear, however, that menstruation is always arrested when the ovaries are removed, and evidence seems to show that the exercise of sexual relations is not materially altered when double ovariectomy has been performed.

As regards purely *mental* disturbances the evidence as to the influence of the ovaries is directly contradictory. For mania is stated to have been cured in some cases after the performance of ovariectomy, and to have been unrelieved in other cases when the operation was performed.

Chronic neuralgia of the ovaries is, perhaps, the most definite of the neurotic affections traceable directly to the ovary, but cases of this kind are, in my opinion, much more rare than is generally supposed; in many supposed cases of this kind the pain located near the ovary is due to some morbid condition of the uterus (see p. 689). Still, some cases probably remain which may truly be called neuralgia of the ovary (coupled with chronic ovaritis, etc.).

Nymphomania has been supposed to have its origin in some morbid condition of the ovaries. Possibly it is the case in some instances. In cases which have come under my notice, where undue sexual excitability was present, the condition with which I have found it associated in some marked instances has been acute ante flexion of the uterus; and that it depended on the uterine condition was proved by the cure of the one following the cure of the other.

*Hysteria, hysterical attacks, hystero-epilepsy.*—The ovarian source of these affections is a doctrine which has of late years been credited to a large extent, chiefly owing to the writings of Negrier, Charcot, and others. It rests on a very frail foundation. The clinical evidence which I have been able to collect is directly in favour of the uterine origin of these affections (see p. 544). In so far as the ovary controls the uterus these affections may be said to be under the influence of the ovaries. It is conceivable that the ovaries may have a direct originating influence in some cases, but the clinical evidence in the cases observed by myself was not suggestive of this mode of origin. It may be said that cases have been observed in which removal of the ovaries has put an end to hystero-epilepsy, but this does not in any way prove that disease of the ovaries was in those cases the exciting cause of the affection.

## BATTEY'S OPERATION (OOPHORECTOMY).

The operation now by universal consent designated as 'Battey's operation' was first suggested by Dr. James Blundell. It was first actually performed by Hegar, July 1872. Dr. Battey of Rome, Georgia, U.S. of America, performed it a few days later, in August 1872, and without knowing of its previous performance by Hegar. Dr. Battey immediately published an account of his first case, and of the principles which induced him to perform the operation, and very shortly after proceeded to perform other similar operations; and although not actually the first operator, he was the first to enunciate and popularise the principle of the operation. In actual priority, however, of performance, Pereival Pott was the first to perform double ovariectomy of normal ovaries. This was in a young woman of 24, in whom the ovaries formed tumours in the groins, and interfered with her getting her livelihood.

Battey's operation is defined by the author to be 'an operation for the removal of the normal human ovaries, with a view to establish at once "the change of life," for the effectual remedy of certain otherwise incurable maladies.'<sup>1</sup>

His first operation was performed on August 17, 1872. The patient, single, æt. 30, had been seven years under treatment for amenorrhœa, accompanied by very severe menstrual colic and suffering, which had been experienced since the age of 16. She had never had more than two proper catamenial periods. She suffered from frequent hæmorrhage from the stomach and rectum, attacks of hæmatœmia, abscesses, extreme debility, and a generally miserable state of existence. The uterus had been dilated and treated with some slight benefit, but no real improvement. The patient gladly accepted the proposal to remove the ovaries. This operation was successfully performed after abdominal section. The pedicles were ligatured and dropped. The cure was complete, and a principle thus established, quite novel in medical treatment, and which is no doubt destined to prove a most valuable addition to the resources of the medical art.

In the first operation of Battey's the ovaries were extracted by median abdominal section. Battey's next operations were performed differently, the vaginal operation being adopted. The 'direct lateral' method of abdominal operation was adopted in

<sup>1</sup> 'Normal Ovariectomy.' *Atlantic Med. and Surg. Journ.* Sept. 1872.



some cases by Hegar. Of late, however, the vaginal method has fallen into disrepute, and the abdominal method is now generally considered preferable. Again, in several cases the plan of removing but one ovary was adopted, even in some of Battey's own cases, thus, as Dr. Marion Sims truly remarks, 'departing from the rule laid down for his guidance at the start.' The result of these incomplete operations has not been favourable.

Among operators who have contributed, up to 1881, to the experience of the new procedure must be mentioned, Hegar (42 operations), Battey (16), Marion Sims, Savage (25 cases), Lawson Tait (30 cases), Engelmann, Schroeder, Pallen, Noeggerath, Alex. A. Simpson, Goodell, Heywood Smith, and others. Since 1872 the operation has been performed many times. At the recent International Medical Congress held in London, Dr. Battey, who was present, brought forward statistics of the operation up to the date of the Congress (1881), including operations by himself and others, as follows:—

Complete operations (both ovaries removed) . . . . .	193
Incomplete cases (one ovary removed, or both imperfectly removed) . . . . .	25
	<u>218</u>
Of the total cases, 18 per cent. died . . . . .	40
„ 82 per cent. recovered . . . . .	178
Of the ultimate results reported—	
Complete operations, cured . . . . .	88 or 72 per cent.
„ benefited . . . . .	22 „ 19 „
„ not benefited . . . . .	11 „ 9 „
Incomplete operations, cured . . . . .	6 „ 26 „
„ benefited . . . . .	10 „ 44 „
„ not benefited . . . . .	5 „ 22 „
„ not stated . . . . .	2 „ 8 „

In the tabulated list given by Dr. Battey there is a column stating the 'indications for the operation.' I have summarised the cases as accurately as circumstances admit:—

Myoma, or uterine tumour . . . . .	38 cases
Ovaralgia, or ovarian dysmenorrhœa . . . . .	39
Dysmenorrhœa, or pernicious menstruation . . . . .	30
Chronic ovariitis . . . . .	16
Hystero-epilepsy, or reflex neuroses . . . . .	32 „
Prolapsed or dislocated ovary . . . . .	5 „

In several cases the 'indications' are omitted; the others, tabulated, are miscellaneous in character—Mania, incurable uterine disease, chronic pelvic inflammation, menorrhagia, etc.

The above includes over three-fourths of the whole cases, and represents the indications for the operation in the majority of the cases hitherto actually dealt with.

A careful examination of the actual records of cases of Battey's operation shows that a short tabulated account, such as that of which a summary is given above, conveys an extremely imperfect idea of the real nature of the cases; and it would seem that it is often an accident as to which of the symptoms present is selected to represent the case in the tables. Take, for instance, Dr. Marion Sims's 'incomplete' cases—we find six cases recorded as cases of 'ovaralgia,' one of these coupled with 'enteralgia,' another with 'dysmenorrhœa.' Now, the full records of these cases published by Dr. Marion Sims state that in the first there was retroflexion of the uterus, in the second retroversion, in the third stenosis of the cervix uteri, in the fourth ante flexion, in the fifth retroflexion, in the sixth retroflexion. Yet in the tabulated list the indications are stated as being 'ovaralgia.' Plainly, therefore, these particular cases are open to the criticism that the uterine distortion was not improbably the cause of the suffering from which relief was sought by Battey's operation.

The same objection applies with more or less completeness to other cases in which ovaralgia, dysmenorrhœa, chronic ovaritis, etc., formed the stated indications for the operation. These terms are not sufficiently definite to meet the present scientific requirements, nor sufficient to guide future action in regard to this operation. It is certain that in some, at least, of the cases which have been submitted to the operation the patient was suffering from disease of the uterus, which might have been successfully treated and without undergoing the mutilation implied in its performance. From what I have seen in practice, and from what I know of the natural history of the disease of the uterus, it is perfectly certain to my mind that many cases of severe ante flexion of the uterus or marked retroflexion of this organ are included in the published list above alluded to, but they figure there under other heads and under different designations. It is a very curious fact that out of the 218 cases there are only four in which retroversion or retroflexion of the uterus is mentioned at all in the *tabulated* list, and there is no mention of ante flexion whatever.

The difficulties and dangers of Battey's operation may here be mentioned.

The operation is simple, as Engelmann points out, when the pelvic viscera are normal, the broad ligaments lax, the ovaries free

from adhesion and not degenerated. But these conditions are not usually present in the cases requiring the operation. When the ovaries are degenerated or adherent, owing to the deep position they occupy, it is not easy to isolate them from adjacent tissues and to securely fix the necessary ligatures. And when the operation is done in cases of tumours of the uterus, such tumours are much in the way and may prevent easy access to the ovary on one or other side.

Battey's operation, as defined by himself (and there seems no reason to amend that definition), is 'for the effectual remedy of certain otherwise incurable maladies.' The diseases to be dealt with by it are therefore such as have been subjected fruitlessly to other methods of treatment.

The objections to the operation are strong ones, and they are such that it is hardly likely the operation will in time to come be much abused, for by it the patient is, of course, effectually prevented becoming a mother, though it does not appear that, as was at first objected, the operation unfits the subject of it for marital duties.

The largest number of cases hitherto operated on have been cases in which menstruation was painful, or difficult, or both, and attended with other grave and troublesome symptoms, and in many cases in which it was conjectured that the ovaries were actually the seat of disease.

In reference to this class of cases, future decisions in regard to the performance of the operation will depend on the curability or not of the menstrual derangement or difficulty. It has been already pointed out that in all probability the organ most at fault in some of the cases reported was the uterus rather than the ovaries, and it is to be expected that in a large proportion of these 'uterine' cases the operation will not prove to be necessary when more attention and time can be given to the cure of the uterine disorder. It is true that in some of these very cases the malady, by its long standing and chronicity, is virtually incurable. Such will be proper cases for Battey's operation.

There are two methods of performing Battey's operation—from the vagina or by the ordinary operation, such as for ovariectomy, through the abdominal wall. There appears every reason for the belief that the vaginal method, though it has been successfully performed, will not be extensively employed in the future (see Operation of Ovariectomy in a later chapter).



## CHAPTER XLVII.

DISEASES OF THE OVARIES—(*continued*).

CYSTIC AND OTHER TUMOURS OF THE OVARIES AND BROAD LIGAMENTS.—  
PATHOLOGY.

CYSTIC AFFECTIONS OF THE OVARY AND BROAD LIGAMENTS.—Hydatid Cysts—Cysts of the Broad Ligaments (Wolffian Cysts)—OVARIAN CYSTS PROPER—General Characters—Origin—Varieties of Arrangement: Simple, Secondary, Tertiary, Multiple, Composite—Cysto-sarcoma, Alveolar, Adenoid, or Glandular Tumour—Cysto-epithelioma, Dermoid—Shape and Consistence of Cysts—Their Lining and Contents—Dermoid Cysts: Nature and Structure—Compound and Composite Ovarian Tumours: Structure and Contents—Solid Tumours of the Ovary enumerated—Natural History of Ovarian Tumours and Ovarian Dropsy as Data for Prognosis and Treatment—Mode in which Life is destroyed—Complications with Pregnancy.

THE *cystic affections of the ovaries and broad ligaments* are of great interest and importance. They are frequently most serious in their results, their diagnosis is often a matter of great difficulty, and it is only within a quite recent period that medical science has been able to grapple with them in any degree satisfactorily. For clinical reasons the cyst affections of the ovaries and of the broad ligaments will be considered side by side, but they are of course essentially different both in nature and origin.

We have to consider *seriatim*—

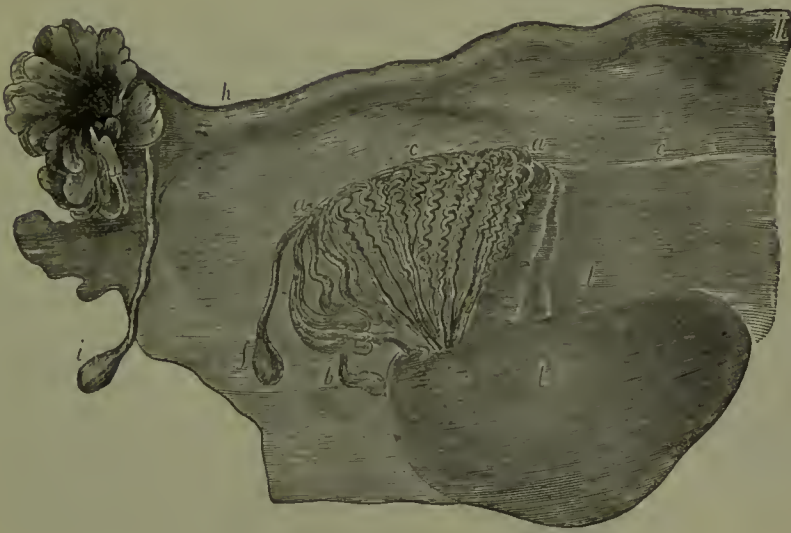
Hydatid cysts.

Cysts of the broad ligament, sometimes termed Wolffian cysts.

Proper ovarian cysts, of which there are several varieties, including the cysts met with in what is termed ‘ovarian dropsy,’ ‘dermoid cysts,’ etc.

*Hydatid cysts* are sometimes met with on the outer surface of the ovary, or attached to the peritoneum in the neighbourhood. The size of such cysts does not ever probably much exceed that of a large orange. They have the ordinary character of hydatid cysts, such as are found in other localities. They—probably almost constantly—originate in the liver, escaping from an hydatid tumour of the liver containing them, into the peritoneal cavity.

*Cysts of the broad ligament (Wolffian cysts).*—The formation of large cysts on the surface of the broad ligament, and quite unconnected with the ovary, is well substantiated. These cysts are usually single and quite simple. They originate probably in the little tubules or terminal cyst-like bodies (see *f b i* in fig. 188, from Kobelt) found near the fimbriæ of the Fallopian tubes and close to the ovary. The structures in which they originate are the remains of the tubules of the Wolffian body. The cysts of the broad ligaments rarely attain a size exceeding that of an orange, their course is ordinarily very slow, and the inconvenience they occasion is consequently not great. Now and then, however, they attain a large size. Thus Mr. Spencer Wells<sup>1</sup> mentions a case in

FIG. 188.<sup>2</sup>

which the cyst was twice the size of the adult head. It was removed from a patient æt. 20. Dr. Wynn Williams exhibited at the Obstetrical Society<sup>3</sup> a very large single cyst, partly removed during life from the abdomen, which was referred to me for examination. It was a single large simple cyst 24 inches in circumference, and the conclusion arrived at was, that it had originated in the broad ligament. The walls of the cyst were  $\frac{3}{16}$  of an inch thick, it had undergone inflammatory changes within, and consequent thickening, and had become adherent superiorly to the diaphragm. The abdomen had been enlarged in this latter case for several years. I have myself successfully removed by the operation for ovariectomy a cyst as large as this last, and it

<sup>1</sup> *On Diseases of the Ovaries*, vol. i. p. 239.

<sup>2</sup> Fig. 188 (from Kobelt) represents the parovarium with its terminal cysts.

<sup>3</sup> See *Obst. Trans.* vol. viii. for 1866.

appeared to be of similar character. The patient had had children, and her age was over 50. The duration of the tumour was in this case over four years. In another case I removed along with a large true ovarian tumour two such cysts, one the size of a large walnut.

The *age* at which they occur with the greatest frequency is between 20 and 40.

#### OVARIAN CYSTS (PROPER).

Ovarian cysts occur of all sizes, from one of microscopic minuteness to one of sufficient size to distend the abdomen to the utmost.

FIG 189.<sup>1</sup>



One ovary alone may be diseased ; sometimes both are affected.

They occur sometimes singly ; in most cases, however, when the ovary takes on cystic disease, more than one, generally many, cystic growths are found associated.

They contain fluid, or a semi-fluid or jelly-like material, or together with this a growth more or less firm and solid. They may undergo, like other structures, inflammatory changes, resulting in formation of pus, false membranes, etc.

In many cases ovarian cysts are evidently nothing more than enlarged and hypertrophied and dropsical Graafian follicles, such as represented in fig. 189.

Rokitansky and some subsequent observers have even succeeded

<sup>1</sup> Fig. 189. Section of an ovary, showing enlarged Graafian follicles with sero-sanguineous contents. (Half the actual size.)



in finding ova in some of the cysts in question, thus affording a demonstrative proof of their nature. The follicle does not for some reason or other burst, or if bursting occurs its lining takes on certain morbid changes subsequently, the result being continued growth of the cyst, and filling of its cavity with fluid. Simple ovarian cysts and multiple cysts originate in this way according as one or more follicles take on morbid action. We can imagine this hypertrophy affecting the Graafian follicles at any period of their growth, with proportionate differences in the results. The Graafian theory of the origin of ovarian cystic disease being admitted, it is easy to see how all sorts and varieties may present themselves in the relations of cysts. A cyst grows, and in its

FIG. 190.



growth carries over it, or within it, portions of the ovarian stroma, in which lie the elements of future Graafian follicles. These undergo the pathological cystic transformation, and hence we get cysts developed one within the other almost *ad infinitum*.

The variations in the growth of the cysts occasion also great differences in the aspect and relations of the tumour at different periods. Thus, a 'simple' cyst may preserve its integrity for many years, the remainder of the ovary not partaking, or partaking reluctantly, so to speak, in the cystic transformation; or the primary cysts may be rapidly encroached upon, and filled up with secondary growths of cysts. And what may happen in reference to the first and second growths may take place also between the secondary and tertiary cysts.

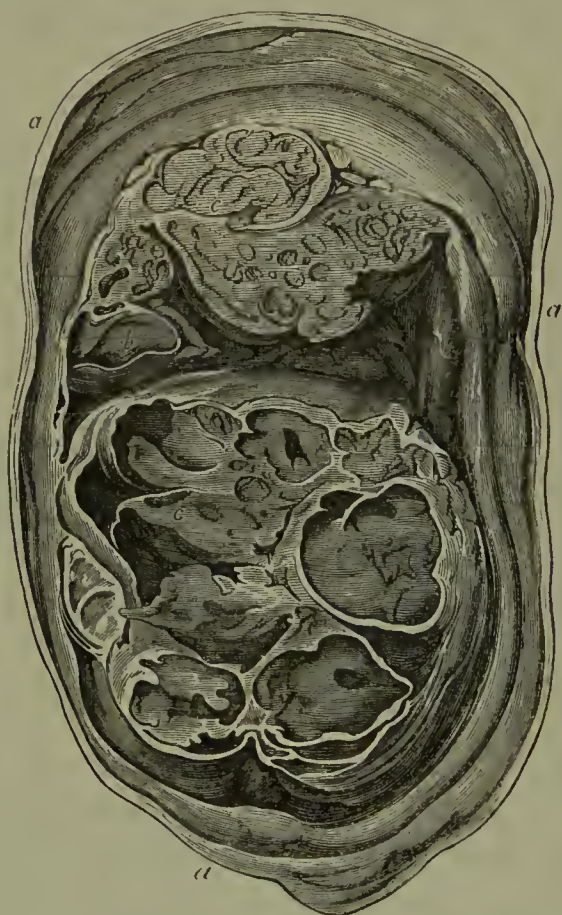
The principal *varieties of arrangement* are as follows:—

A. One large cyst (simple).

B. One large cyst in the interior of which are found several smaller ones ('secondary'), and within these again others still smaller ('tertiary'); these are also termed 'compound' cystic tumours, 'proliferous' (see figs. 190, 191, from drawings by Dr. A. Farre).

C. Three or four large cysts ('multiple,' Farre), quite or nearly contemporary in growth, and which may contain secondary cysts.

FIG. 191.



D. A cystic tumour composed of one or more large cysts, and together with these a solid substance, itself containing cysts—'composite ovarian tumours,' 'cysto-sarcoma,' or 'alveolar adenoid tumour' (Spencer Wells); 'glandular' (Wilson Fox). Fig. 192, from Cruveilhier, and designated by him and former pathologists 'colloid cancer,' represents an ovarian tumour of this kind.

E. Cancer may be present together with cystic structures ('cysto-carcinoma').

F. One or more cysts containing hair, fat, etc. ('dermoid').

In 'ovarian dropsy' we have one or more large cysts containing fluid.

The *shape* of ovarian cysts is ordinarily rounded where they are single. Where also the tumour contains two or more large cysts, the outline of the whole tumour is rounded. When so large as to occupy the greater part of the abdomen, the shape of the cyst or cysts is determined necessarily by that of the abdominal walls.

The *consistence and thickness of the walls of the cysts* are various. The wall is sometimes very thin, especially in the case of single cysts, or where the tumour is mainly made up of one large

FIG. 192.<sup>1</sup>



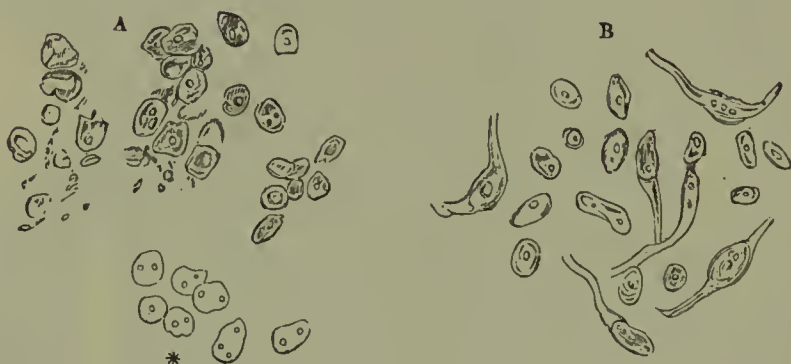
cyst: the free surface of most cysts is thin. But the cyst walls have often very considerable thickness, and they are liable to be thickened by deposit from within, this deposit being the result of inflammation or coagulation of effused blood, or deposition of fatty matter in the shape of cholesterine, or from presence of growths to be presently described. In the case of simple cysts, the walls are generally divisible into three layers. The outer is the peritoneal covering, which is thin and translucent. The middle coat is of varying thickness, according to the age of the cyst and other circumstances; it is generally a firm, fibrous layer, giving strength

<sup>1</sup> Fig. 192, from Cruveilhier and Farre, is a good representation of the alveolar or glandular tumour; formerly termed colloid cancer.



and consistence to the cyst. The middle coat contains the blood-vessels of the cyst, which are often very numerous, and may be as large as a small quill. Fatal hæmorrhage may occur in the operation of paracentesis, from wounding these vessels. The internal coat is a layer of cells, generally spheroidal, sometimes columnar (see fig. 193); the epithelium may be a single layer, but is very often in several layers. The character of the internal lining varies in different places, and according as other changes—inflammatory, etc.—have affected it.

The *contents of ovarian cysts* are open to great variation. Some, containing hair, fat, teeth, etc., form a class by themselves, presently to be described (dermoid cysts). The contents of the more ordinary cysts are mostly fluid, but very frequently they have a consistence more nearly that of treacle, and we may have all gradations between a limpid fluid and a thick mucus-like mass.

FIG. 193.<sup>1</sup>

The colour varies excessively. In the majority of cases, the large cysts contain a fluid simply serous in character, light-yellowish and transparent; where there are many cysts, it is not uncommon to find the contents of no two cysts precisely alike. Blood is, not very uncommonly, effused into the cavity of ovarian cysts, and the transformations through which the blood passes give rise to peculiar appearances, the contents then assuming various dark shades of colour. There may be flakes of fibrinous matter together with fluid, or the contents of the cyst may be distinctly puriform. In some cases there is an admixture of fattily degenerated structures. The consistence of the contents is peculiar. In almost all cases there is a remarkable visciduity, and the contents of ovarian cysts are sometimes so extremely tenacious that

<sup>1</sup> Fig. 193 represents epithelial cells from the interior of an ordinary ovarian cyst: A from a very small cyst; \* the same, after addition of acetic acid; B from the surface of a contained cyst.

the whole mass when pulled out holds almost inseparably together. The chemical constitution of the fluids of ovarian cysts is as follows:—

Solid matters . . . .	58	per 1,000 (average of 31 analyses)		
Pure albumen . . . .	43	„ 1,000	„ „	26 „
Salts . . . .	7	„ 1,000	„ „	15 „
Fatty matters and fibrin in small quantities.				

The foregoing figures embody the results of analyses made by Becquerel of the contents of ovarian cysts taken from ten individuals. The average only is stated above, but there was a very wide range in the proportions of the different constituents in different cases. Thus the figures representing the highest and lowest proportion of solid matters were 101 and 21; the highest and lowest for albumen 90 and 17; for salts 10 and  $1\frac{1}{2}$ . These results are calculated from a table which will be found in Mr. Clay's translation of Kiwisch, and which was supplied to Mr. Clay by Becquerel.

In an elaborate paper by Dr. Wilson Fox<sup>1</sup> will be found an account of the qualitative analyses of the contents of ovarian cysts. 'The results tend to show,' Dr. Fox believes, 'that in these fluids there is a considerable difference between the contents of the different cysts. In all, the reactions obtained are more akin to those modifications of albumen discovered by Professor Scherer, and termed by him metalbumin and paralbumin, than to any of the hitherto isolated members of the series.' The reaction was always alkaline, there was no precipitation with acetic acid, a point distinguishing these fluids from mucus. Waldeyer, Koeberlé, and Thornton consider that ovarian fluid is usually characterised and distinguished by its containing paralbumin, which substance is thrown down by heating the fluid, and is dissolved by strong boiling acetic acid. Dr. Drysdale (Philadelphia) considers that ovarian fluid is characterised by the presence of what he terms 'the ovarian granular cell.' This cell is an albuminoid body containing little fatty particles which give it a granular appearance. This ovarian cell is changed little by acetic acid. Dr. Drysdale gives these statements as the results of very numerous observations.<sup>2</sup>

It appears that when the ovarian tumours are simple or innocent, the 'ovarian' cells of Drysdale only can be observed.

<sup>1</sup> *Med.-Chir. Trans.* vol. xlvii. p. 272.

<sup>2</sup> *Trans. Amer. Gyn. Soc.* vol i. p. 195.

But when the tumours are of a malignant character other cells are liable to be observed in the fluid. And the examination of the peritoneal fluid in cases of ovarian malignant tumour discloses presence of peculiar cells, which would indicate that the tumour is not simple. Mr. Thornton<sup>1</sup> and Dr. Foulis<sup>2</sup> separately made this observation. These 'malignant' cells are large pear-shaped, round, or oval cells, containing a granular material, with one or several large nuclei, with nucleoli and transparent globules. Dr. Foulis considers that presence of masses of sprouting epithelium indicates presence of malignant peritonitis, especially when they are found in large number in bloody ascitic fluid. It appears to be a more serious matter prognostically, when these peculiar cells are contained in peritoneal fluid, than when they are taken from the interior of a cyst. Dr. Emmet, comparing statements of various observers, comes to the conclusion that malignant ovarian tumours are more common in this country than in America.

An important fact here to be noted is, not only that the same cysts have not at all times like contents, but that the same cyst tapped at different periods may give issue to fluids of varying degrees of consistency.

#### DERMOID CYSTS OF THE OVARY, CONTAINING FAT, HAIR, TEETH, BONES, ETC.

These form a well-marked and distinct class, not in reference to their outward form, but to the nature of their contents. They are not very commonly met with. The term 'dermoid' has been applied to them from the nature of their contents, which are epidermic in character. They vary in size from a millet-seed to that of several inches in diameter. Usually there is found in the cysts a lining composed of a substance like the cutis vera, in which may be traced structures identical with those of the true skin, viz. papillæ, sebaceous follicles, and hair bulbs, together with sweat glands. Masses of fat intermixed with hair, the latter rolled up in balls, and teeth, with plates of bone—some or all of these form the contents of the cyst. But, together with these products, which have given the name 'dermoid' to this variety of cysts, they frequently contain fluid, gelatinous material, and glandular growths such as are met with in other kinds of ovarian cysts. When the cyst has been the seat of inflammatory changes, pus may also be found within it.

<sup>1</sup> *Brit. Med. Journ.* Sept. 7, 1878.

<sup>2</sup> *Ibid.* July 20, 1878.



They are found at all ages, in the child, in the woman, and after the period of sexual vigour is passed. Compared with other ovarian cysts they are rare; they seem to have been observed prior to puberty more frequently in proportion than other ovarian cystic tumours.

The precise nature of these curious growths has been a matter of controversy. It appears certain that they originate in the Graafian follicles. The presence of hair, teeth, and bones, was naturally suggestive of the idea that the cyst was a product of generation, until it was known that they are formed quite

FIG. 194.<sup>1</sup>

independently of sexual intercourse. In an elaborate paper on the subject<sup>2</sup> Dr. Julius Pauly says: 'The most generally accepted theory attributes their development to a process of separation by strangulation occurring during embryological growth, such as Remak assumes for the cholesteatoma and Thiersch for the dermoid cysts'—like formation of subcutaneous dermoid cysts by simple invagination of the skin and strangulation of the sacs of epidermis from which are formed the future hair follicles, with

<sup>1</sup> Fig. 194, from Cruveilhier, exhibits a dermoid cyst with its contents, consisting of hair, hair follicles, adipose tissue, etc.

<sup>2</sup> Trans. in *Amer. Journ. of Obst.* vol. viii. p. 404.

the difference that in the deeply-seated ovarian dermoids the closure of the abdomen has to be considered.'

This theory involves the *congenital* origin of dermoid cysts of the ovary. The germs of the tumour exist from birth, but puberty or marriage produce in many cases at least the *development* of the tumours. The *ages* in 103 cases were as follows:—

1-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	over 70
4	3	10	8	12	14	10	11	8	10	5	3	1	2	2

From a *few* recorded cases it seems likely that these dermoid cysts are not seldom associated with a more or less undeveloped condition of the sexual organs.

Waldeyer's theory is as follows: 'The epithelial cells of the ovary are capable in the way of ordinary proliferation of furnishing differently formed products than are usually found during the division of cells, when the descendant cells always bear the same character as the parent cells. This power, peculiar to the epithelium of the ovary, is made comprehensible by the fact that all ovarian epithelium must be considered as undeveloped germinal cells, or undeveloped ova. If a proliferation of the deep-seated ovarian epithelium takes place in the ordinary manner, in most cases a myxocystoma (colloid cyst) will be the result; whereas, if the proliferation referred to is attended with a deviation of the products of development a dermoid cyst will be formed.'

Dr. Barnes states that dermoid cysts are usually roused into active mischief under the influences of pregnancy and labour after remaining dormant and unrecognised perhaps for years previously. He relates four cases; in two of these the cysts were not discovered till after labour, when both suppurated.

Dr Mundé<sup>1</sup> relates a similar case. The suppurating cyst was observed seventeen months after a confinement—*hair* passed with the discharge. There was a hard tumour behind uterus opening into vagina.

The accurate account of the anatomy of these cysts, put forward by Steinlin,<sup>2</sup> showing the presence of a skin-like structure in the cyst, explained why the cyst was found to contain skin secretions, viz. hair, sebaceous matter, and teeth. The late Dr. Ritchie<sup>3</sup> expressed his belief that every dermoid cyst of the ovary is really

<sup>1</sup> *Amer. Journ. of Obst.* vol. xi. p. 578.

<sup>2</sup> *Zeitsch. f. nat. Med.* Band ix.

<sup>3</sup> *Ovarian Physiology and Pathology.* London, 1865, p. 175.

an ovum which has undergone a certain amount of development; that it is a perverted attempt at parthenogenesis.

Dermoid cysts of the ovary run generally a slow course. They may inflame, suppurate, and ulcerate, and death may be the result of such alterations. In some cases the cysts have ruptured into the peritoneum, in some they have ulcerated into the bladder, with the result that the patient evacuates hair, etc., with the urine.

#### COMPOUND OR COMPOSITE OVARIAN TUMOURS.

The *partly solid, partly cystic* structures found in many ovarian tumours, and for which the appropriate designation is 'compound' or 'composite,' will next engage our attention.

Of late years the occurrence of a substance containing and surrounded by cysts, and having itself a great resemblance to mammary glandular tissue, has attracted attention. It was termed by former writers 'cystic sarcoma.' Mr. Spencer Wells<sup>1</sup> proposed to designate it 'adenoid tumour,' or 'adenoma' of the ovary. He described it as 'identical in structure with the adenoid growths first described in connection with the mammary gland,' and consisting of 'delicate fibrous stroma, forming round or oval alveoli, the latter lined by densely-grouped epithelial cells forming a zone enclosing an area loosely packed with cellular elements of a similar form.'

Another variety of the partly solid and partly cystic tumours of the ovary is that hitherto known as 'alveolar' or 'pseudo-colloid' disease of the ovary. It was for some time considered to be carcinoma of the colloid variety, but this idea is now entirely abandoned. The surface of the section of such a tumour resembles, as Dr. Farre,<sup>2</sup> who has well described it, remarks, 'a fine sponge, the alveolar spaces being condensed and somewhat flattened, in consequence of the profusion with which the alveoli have been developed' (see fig. 192). 'These cysts are filled with a viscid mucus-like material, resembling half-liquid jelly.' The mass on section sometimes resembles a honeycomb. Respecting the nature of these adenomatous and alveolar growths more will be said presently.

*Cystoid cancer* constitutes another composite tumour. Here the more ordinary cysts are present, together with medullary

<sup>1</sup> Report of Pathological Society in *Med. Times and Gaz.* Oct. 1862. See also *On Diseases of the Ovaries*, vol. i. p. 122.

<sup>2</sup> *Loc. cit.* p. 592.



cancer, the cancerous growths pervading the stroma of the ovary, and pervading, as is the manner of cancerous growths in other parts of the body, in succession, the adjacent structures. As is the case in the two preceding groups, the proportion of solid matter to cystic growth varies in different cases and at different periods in the same case. In cases of cystoid cancer the tumour—semi-solid, or nearly solid to the feel at one part, more or less fluid at another, presenting often rounded eminences on its surface—may grow with great rapidity, and the whole tumour may be of considerable size. The cysts are liable to contract close adhesions of a more vascular nature than usual to surrounding parts. In a case operated on by myself these adhesions when broken bled most profusely.

The nature of *adenomatous* or *glandular* and alveolar structures, and their relations to cystic and cystoid growths of the ovary, have undergone a most careful and complete investigation at the hands of Professor Wilson Fox, the results of whose researches are contained in a paper in the ‘Medico-Chirurgical Transactions’<sup>1</sup> for the year 1864, and whose conclusions, demonstrative in themselves, have been verified by subsequent observers.<sup>2</sup>

It appears necessary (following Dr. Fox) to go back to the primary developments of the ovary, and of its contents, in order to arrive at an explanation of the structure of these cystic growths. Pflüger’s<sup>3</sup> observations on the development of the ovary in the calf and the kitten show that the Graafian follicles begin in these animals as *tubes*, these tubes becoming constricted at various points, in order to form the separate follicles. Dr. Wilson Fox has found the human ovary in early embryonic life to contain tubules, or quasi-tubular structures intimately concerned in the production of the Graafian follicle. Now, Dr. Fox has made out that in many cystic growths of the ovary there is met with a structure of tubular character, wherein occur changes analogous to those observed by Pflüger in the development of the Graafian follicles of some other animals, viz. formation of tubes, or glands, and constriction of these tubes at certain points, one result of which is formation of cavities or cysts within this glandular tissue. It appears that Billroth, from observations in the thyroid gland, had come to the induction—‘brilliant,’ as Dr. Fox terms it—that

<sup>1</sup> ‘On the Origin, Structure, and Mode of Development of the Cystic Tumours of the Ovary,’ vol. xlvii. p. 227.

<sup>2</sup> Dr. Braxton Hicks, Mr. Hulke.

<sup>3</sup> *Ueber die Eierstöcke der Säugethiere und des Menschen*, 1863.

similar tubular structures would be found in ovarian cystic tumours. Dr. Fox has furnished the experimental proof that this is the case. It is his belief that 'these tumours of the ovary (containing glandular structures) should be classed with those which originate in other glandular organs, by an abnormal repetition of the processes of development observed in the foetal condition, recurring with aberration in the adult.'<sup>1</sup>

Dr. Fox's results are based on an examination of fifteen cases of ovarian tumour, in nine of which he was able to trace the formation of secondary cysts from tubular or glandular structure within cavities which appeared to have been Graafian follicles.

A brief abstract of Dr. Fox's account will now be given:—

The *lining* of the parent cysts presents usually a spheroidal epithelium in one or several layers. The growths which proceed

FIG. 195.



from the internal walls Dr. Fox describes as 'papillary,' 'villous,' or 'glandular,' these terms indicating the physical characters of the growths.

The papillary growths, as represented by Dr. Fox (see fig. 195), are composed of processes of delicate hyaline stroma, covered with epithelium, spheroidal or columnar, and tending to form large composite masses from repetition of the same process of growth from the sides of those already formed. The surface of the growths is finely villous, they are very vascular, and may attain considerable size. They are solid, but adjacent ones often grow together, and hence are formed between them narrow crypt-like spaces. Thus originate 'secondary' cysts, and *in the secondary cysts* further growths occur. Concurrently, also, the original cyst necessarily increases in size, and secretions form in the interior. Dr. Fox

<sup>1</sup> *Med.-Chir. Trans.* vol. xlvii. p. 275.

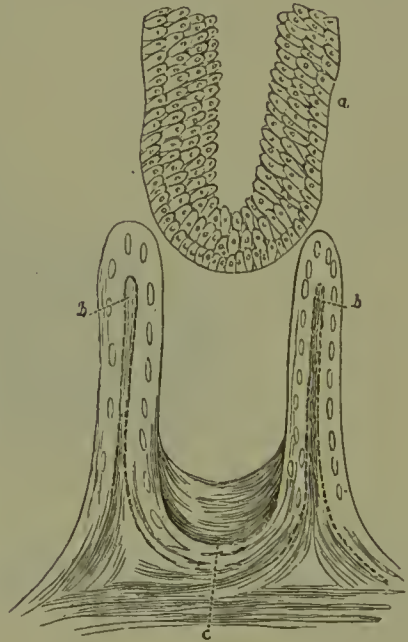
considers that the formation of secondary cysts, as *thus* described, does not occur to a great extent.

The '*villous and glandular*' *growths*.—Fine 'villous' processes are the first stage in the formation of the 'glandular' growths. The villi contain very little stroma, thus differing from the papillary growths just described; they are little more than a loop of vessels supported by a little connective tissue, and are covered by several layers of epithelium of columnar form. When closely clustered, they lead to formation of glandular structures.

FIG. 196.



FIG. 197.

FIG. 198.<sup>1</sup>

The elevation and lengthening of the villi result in the formation of corresponding depressions between them, the stroma growing upwards and surrounding these pits or hollows; the result being a series of tubular spaces. The first stage is represented in fig. 196 (from Fox), and the latter one in fig. 197. The glands thus formed are from  $\frac{1}{100}$  to  $\frac{1}{400}$  of an inch in diameter; they are lined by several layers of epithelium. Further growths of villi may occur in the base of each tube. *Cysts* are formed in the

<sup>1</sup> Fig. 198 (from Fox) shows epithelium separated from papillae.



resulting glandular tissue thus: The orifice may be occluded by growing of the opposite walls together, as shown in fig. 197, or by septa growing across the tube, or by the stroma actually growing over and surrounding a cyst already formed within the parent cyst, one result of which is formation of a compound growth, and the glands and glandular masses may be found protruding through or still embedded within the stroma. The process of cyst formation in these glandular structures may be repeated *ad infinitum*.

A gland shut off and divided by septa becomes thus changed into a cavity with highly marked alveolar structures. Some of the alveolar spaces in the ovary originate in a kind of failure in the development as here described, but generally these alveolar spaces contain the same lining as that of the glands from which they spring, and the same tendency to further and fresh formations of glands. Dr. Fox's anatomical description accords with Rokitansky's, Virchow's, and Förster's, but his view as to the origin of these alveolar structures is new and different.

When the stroma grows in excess, we get a dense tissue permeated with alveoli—the condition described by Mr. Spencer Wells as 'adenoma.'

From the formations described by Dr. Fox, the secondary cysts and all the consequent varieties of structures in these diseases, originated in nine out of the fifteen ovarian tumours examined.

Another mode of cyst development with Graafian follicles was observed in a few instances, viz. a growth of glands superimposed one on the other by a process equivalent to budding. This process was found occurring simultaneously with the other mode just alluded to. Alveoli may arise from the close packing of a number of these thin-walled cysts.

Dr. Fox's conclusions imply the origin of these varieties of ovarian disease in the interior of Graafian follicles—well or imperfectly developed—and he would account for the origin of the dermoid cysts in the same way, although he has not actually had an opportunity of examining these latter structures.

Dr. Ritchie<sup>1</sup> endeavoured to prove that the ovum itself becomes developed in an irregular way, and gives rise to some of the forms of ovarian disease. Dr. Fox does not participate in these views.

Diseased processes are liable to occur in these compound or composite tumours. The external or parent cyst may give way on the surface, the contents escaping, and the growth within

<sup>1</sup> *Op. cit.* p. 197.

protruding again, the septa within undergo fatty degeneration. Bleeding may occur within the cysts, and inflammation, formation of pus, etc.

#### SOLID TUMOURS OF THE OVARY.

Following the classification of Kiwisch, these tumours may be arranged as follows: 1. Hypertrophy; 2. Adipose (dermoid) cysts; 3. Apoplexies of the ovary; 4. Fibrous tumours; 5. Enchondroma; 6. Cancer. To these may be added, 7. Tubercle.

The tumour constituted by simple hypertrophy of the ovary never attains any considerable size, probably not above that of a pigeon's egg. There is a remarkable case, however, recorded by Dr. Bright, in which both ovaries were found after death enlarged pretty equally, and each constituted a firm fleshy tumour nearly six inches in the longest diameter, and having the shape of a kidney. They were taken from a patient who had borne children and who had passed the menstrual period of life. She had experienced pain referable to the uterus, a hard substance had been perceptible over the pubic region, and there had been considerable difficulty in micturition. She died, greatly emaciated, and having had jaundice and ascites. The tumours were not malignant in character.<sup>1</sup>

The *dermoid cysts* have been already considered (p. 706).

The *apoplexies of the ovary* are constituted by inordinate effusion of blood and coagulation of the same, in Graafian follicles; or by hæmorrhage into pathological structures of various kinds, such as cysts, or in the interstices of growths of cancerous or colloid matters. In the former case the tumours produced by the hæmorrhagic effusion are very limited in extent; in the latter they may be very considerable.

*Fibrous tumours* are met with in the ovary, in many respects resembling those found growing so frequently in the walls of the uterus; but a distinct independent pedunculated fibroid tumour of the ovary is a very rare pathological product, many cases recorded as such having really a true uterine origin. The fibrous growths met with in combination with cystic disease of the ovary belong to a different category, and are not so uncommon. The solid independent fibroid tumours of the ovary have been found sometimes to undergo osseous transformation, and the same may probably hold good with reference to other fibrous tumours.

*Enchondroma of the ovary* is very rarely observed.

<sup>1</sup> *Clinical Memoirs on Abdominal Tumours* (New Syd. Soc.'s edition), p. 146.

*Cancer of the ovaries* constitutes one of the most important varieties of solid tumour. It occurs in two forms, scirrhus and medullary, the latter being the more common. Cancer occurring primarily is more frequently than not associated, as has been already stated, with cystic disease of the organ, or it may be found affecting the cystic growths secondarily. The hard form of cancer of the ovary does not attain a large size; it does not exceed the size of a child's head, and is usually very much smaller. Cancer of the ovaries may be found in association with cancer of the adjoining parts—that is, it may spread into the ovaries from the uterus or other organs, and may involve, more or less, the whole contents of the pelvis; and it may, when so found, originate in the ovary or in the adjacent organs. True cancerous disease of the ovary of large size is rare, unaccompanied by similar disease in adjacent parts; and it is also rare to find carcinomatous diseases of the ovary uncomplicated with cystic disease of the same organ. Ascites is very frequently associated with, and is an effect of, cancerous disease of the ovaries. Dr. Washington L. Atlee describes four interesting cases of sarcoma of the ovary.<sup>1</sup>

*Case I.*—Æt. 30; uterine hæmorrhage, convulsions, miscarriages, dropsical, anasarous; on examination, abdomen size 6-7 months' pregnancy. Two tumours, one each side, both oblong, kidney-shaped, hard, nodulated, like a cirrhused liver, movable; uterus central, normal. Diagnosis, malignant disease of both ovaries. Result not known.

*Case II.*—Æt. 32; three children; two months noticed a tumour, found to be ascites. Tapped. When seen two days later size of pregnancy at term. Diagnosis, a compact, small-celled multilocular tumour of right side, with peritoneal fluid. Tumour removed; incision 6-7 inches; shape enlarged kidney; 3 lbs., nearly 12 inches long by 6; hard, nodulated, mostly solid, some cysts in it. Microscope showed fibrous stroma, variously shaped cells, containing oil globules and granular matter cells; round, oblong, or oval, contained many nuclei. It seemed to be fibro-carcinoma, according to Rokitansky's description. Rarest form of cancer of ovary. Patient died in thirteen days.

*Case III.*—Æt. 30; two children; disease began about four months. Tumour irregularly ovoid to above umbilicus; hard, nodulated, like hob-nailed liver; no dropsy. Did not recommend operation. Dr. Thomas afterwards operated: removed both ovaries (and injected milk); saved life, but three months afterwards patient died from carcinomatous tumours of abdomen.

*Case IV.*—Æt. 30; three children, last eighteen months; two months before seen noticed lump in right inguinal region; rapid increase; hard,

<sup>1</sup> *Gyn. Trans.* vol. ii.



nodulated tumour felt; abdomen size of full gestation. Two months later fluid in peritonæum. Tapped; 26 pints. Two tumours felt below, very hard, nodulated. Ovariectomy. Diagnosis before, malignant disease of ovaries. Both ovaries removed, pedicles tied and dropped. Microscopic examination of juice showed a moderate number of round, oval, and spindle-shaped cells with large oval, regularly formed nuclei, and generally with bright nucleoli, closely corresponding with appearance of spindle-celled sarcoma. The committee consider the tumours of this character.

*Tubercular disease of the ovary* has been occasionally met with in conjunction with cystic ovarian disease, not forming a definite tumour, but occurring in the form of granulations scattered over the peritoneal aspect of the cysts.

#### THE NATURAL HISTORY OF OVARIAN TUMOURS AND OVARIAN DROPSY—THE DATA FOR PROGNOSIS AND TREATMENT.

Here we shall devote a short space to some remarks concerning the natural history of ovarian tumours and ovarian dropsy, including their mode of growth, and duration, also the danger to life, and the mode in which life is destroyed by them.

The rare *fibrous tumour of the ovary* is generally of slow growth, but some tumours (reputedly) of this nature grow now and then rapidly. When of great size such a tumour may give rise mechanically to a fatal result, by impeding in some way the due exercise of the functions of neighbouring organs, or by giving rise to enormous ascitic distension. The latter secondary effect may threaten the patient's life.

The affections of the ovary to which most interest attaches are those of a *cystic* nature, and in which the disease is constituted by the presence in the ovary of cysts, or of cysts associated with solid matters of various kinds.

The *cysts* of the broad ligament grow slowly, but may after some years acquire great size. The *dermoid* or *fat cysts* present peculiarities, rendering a separate consideration of them necessary. Their course is usually slow; they may exist for some years without increasing remarkably in size, but they appear liable at any moment to undergo changes of a character fatal to the patient, viz. inflammation, formation of pus, perforation, and rupture. The contents of these cysts—viz. fat, hair, teeth, or other matters—become evacuated into the intestines, into the peritonæum, or into the bladder, and the patient may perish from the effects of the mischief thus set up. The result of injecting iodine into the interior of a

cyst of this kind, in a patient under the care of Dr. Alex. R. Simpson, does not offer encouragement to the pursuance of a similar treatment in future.

The other varieties of cystic affection of the ovary (for an enumeration of which see p. 698) require a longer notice. The variations in respect to the number of cysts affected with disease in a particular case are great: their contents also vary. In another circumstance also there is very great variability, viz. in respect to the progress made by what appears to be the same disease under different circumstances. And it is this great variability which infuses to so great an extent the element of uncertainty into our speculations as to the future of particular cases.

In cases where there is *one large simple cyst* of the ovary, with contents fluid or semi-fluid, the course of the case will probably be as follows: The cyst itself goes on increasing in size until it occupies the greater part of the abdomen, pushing the viscera of the abdomen upwards and backwards; the rate of increase may be fast or slow. It may remain in the pelvis, or it may leave this cavity altogether. The further history of this cyst will vary according as more cysts become developed below, or within, or upon it, or according as it remains single or the reverse. If no further development of cysts take place, this primary large cyst may go on slowly increasing in size, or, having arrived at a certain state of fulness, may remain quiescent, and the patient may live several years, suffering chiefly from the mechanical inconvenience and distress produced by the great enlargement of the abdomen. The walls of the cyst may become accidentally ruptured, and the contents effused into the abdomen, or into some of the adjacent viscera; and under these circumstances the patient may be killed thereby; and, such rupture having taken place, the cyst may go on secreting anew, or no such further secretion may take place, and a cure may be witnessed. The distress and distension may, at a comparatively early period of the history of the case, be so great as to call for surgical relief—*e.g.* tapping— and if tapping be performed, the cyst may refill again and again with great rapidity, the patient soon sinking from the effects of so great and continuous a loss. In some rare cases the disease has disappeared after one tapping.

The aspect of the case will also vary according to the relations of the tumour. Thus, if the cyst become fixed by adhesions in the pelvis at an early period, the mechanical difficulties thereby produced will be greater than where no such adhesions exist. And

this circumstance has an important relation to the prognosis of the case, for the existence of the patient may, under such circumstances, be prematurely cut short by the disturbance of the renal secretion due to pressure on the ureter; such pressure giving rise to distension of the ureter and of the pelvis of the kidney. The functional disturbances of the other abdominal viscera are pretty much the same in cases of large cyst, whether the cyst extend into the pelvis or not.

The foregoing summary includes the principal features of one class of cases as they occur in practice, and it will at once be remarked how very variable is the course observed. It is impossible to ascertain positively what the future course of a particular case will be, although the previous history frequently affords valuable hints on the matter. There is one circumstance in connection with these cases which appears to have received less attention than might have been expected, viz. the possible influence exercised by a large cyst already in existence in preventing the development of fresh cysts. Some apparent anomalies in connection with the results of the operation of tapping in cases of this kind are in part explainable by admitting that an influence of this kind may be exercised. The operation of tapping has in many cases appeared to accelerate the fatal event; it is certain that the disease has advanced much more rapidly after its performance in a considerable number of instances. In a certain proportion of these cases the fatal event is connected with the rapidity with which the cyst refills after being emptied, but in not a few it would appear that other cysts start into activity which would probably have remained quiescent if the primary cyst could have been left undisturbed.

An element of an unfavourable kind in the prognosis of a case where there is only one large cyst of the ovary, is the rapidity with which that cyst fills or refills after being tapped; danger from this tendency to refill is one less in degree than another which is to be feared at some future time, viz. the starting into activity and growth of other cysts; and there can be no question that, short of a radical cure, the restriction of the disease to one large cyst is one of the best results to be looked for. A careful survey of recorded facts appears to warrant the conclusion that the tendency to cyst formation in the ovary is often temporary, apparently exhausting itself in the production of one large cyst. Thus, supposing that the tendency to new cyst formation has in a particular case been arrested, the patient is less likely to succumb to



this disease. The patient may still die from the perpetual drain on her system, caused by repeated refilling and evacuation of this cyst, or in some one of the other ways pointed out. But at first, and indeed for a very considerable time, it is always difficult to say whether the arrest alluded to has occurred.

*Compound cystic tumours.*—Here the tendency to cyst formation is, it may be from the first, not limited as above, but there is a successive production of cysts within, or upon, or below, those first formed. The cysts may grow with excessive rapidity, and the whole abdomen may very quickly become filled. This may occur either primarily, so to speak, or, one or two large cysts only having for some time existed, the abdomen becomes suddenly and alarmingly invaded by a multitude of new growths. The prognosis of cases of the kind now mentioned is very unfavourable. It is so bad, indeed, that Dr. Bright was accustomed to use the term ‘malignant’ in describing such cases. The use of the word ‘malignant,’ so applied, is liable to lead to misconception, this term being now more generally limited to cases where there is actual cancerous substance present. In the cases now under consideration there is not, except in very rare cases, any cancerous formation at all, the fatality depending on the mechanical interference of the ovarian tumour with the functions of life. When we find an ovarian tumour suddenly take on rapidity of growth, and are able to satisfy ourselves that this increase in size is not due to simple enlargement and distension of one or two previously existing cysts with fluid, the case is assuming a very threatening aspect. If the tumour become more irregular to the feel, if the fluctuation become indistinct while the tumour is evidently growing fast, these are facts confirmatory of the supposition that the tumour is the seat of rapid and extensive cyst formation.

*Composite tumours.*—Another class of cases have now to be spoken of, in which there is formation of a considerable amount of solid matter, together with cystic disease of the ovary, there being simultaneously production of cysts and of the solid matter in question. Such cases often proceed with exceeding rapidity, and their prognosis is bad, the patient being generally killed with a rapidity commensurate with that of the increase in the size of the tumour. Cases are sometimes met with where, at a very advanced stage of the disease, no further increase in size appears to take place.

Lastly come those cases where the ovary, either previously the seat of cystic disease or not, becomes affected with *cancerous*

*disease.* The prognosis in such cases is almost identical with that of cancer in other parts of the body. The disease termed 'alveolar cancer,' or pseudo-colloid disease, is not really cancer. In ordinary cancer of the ovaries, the prognosis is necessarily of a gloomy character, the disease spreading from or to the adjacent organs, and soon destroying the patient. But the diagnosis of these cases is very frequently only made during the operation of ovariectomy.

The *manner in which ovarian dropsy kills* varies excessively in different cases. It is in many instances a slow production of death by exhaustion consequent on repeated drains from tapping. It is due often to intercurrent, slight affections, which would have produced little effect in a healthy individual. Thus, when the breathing is mechanically restricted, a slight inflammation of the lungs may rapidly prove fatal. In ordinary advanced cases of the disease, the mechanical disturbance of the functions of the great viscera—the heart, the liver, the kidneys (as by pressure on the ureters), the stomach, etc.—gives rise to various alterations which directly and indirectly impair the vitality of the individual. Restricted as to her food, restricted as to her capability of moving about, suffering from frequent nausea, sickness, prevented from sleeping, tormented by pains and inconveniences too numerous to mention, the sufferer from advanced ovarian disease presents a most lamentable spectacle. The condition of the patient is often the more painful, as it is quite evident that the other organs of the body are sound, and that, apart from the ovarian disease, there is nothing materially wrong.

The patient may be killed by rupture of the cyst, by inflammation of the same; in compound cysts, by inflammation and pyæmia consequent on softening and breaking down of the septa between the different cysts. Hæmorrhage into the cyst cavity is another accident which may occur. Each and any of these events may lead to a fatal result, but they may also, and do occasionally, bring about the cure of the disease. The rupture of the cyst is an event which is not very rare: the cyst may burst into the peritoneal cavity, or into any of the adjoining viscera, or it may perforate the abdominal wall. Such rupture is often the result of a blow, a fall, or an accident of some kind. When the fluid escapes into the peritoneal cavity, excessive diuresis generally occurs, and the size of the abdomen lessens. This rupture may kill the patient, as before remarked, but it has in a few recorded instances resulted in cure. In certain rare instances the pedicle

of the tumour becomes twisted on itself, and the patient is killed by mortification of the tumour.<sup>1</sup>

*The relation of ovarian tumours to pregnancy.*—Difficulties may attend the process of gestation and parturition of a mechanical nature; ovarian tumours are, it appears, sometimes liable to undergo, during pregnancy or immediately after delivery, a softening or inflammatory process, attended with danger to the life of the patient. I was acquainted with the particulars of a case in which a woman had borne well and easily five children, having had a large cystic tumour of the ovary during the whole period; but I know of another case where the patient died, apparently from rupture of an ovarian cyst, shortly after the labour had occurred. Cases bearing on this point have been collected and commented on by Mr. Spencer Wells, Dr. Braxton Hicks, and others.<sup>2</sup> It appears that in many cases, however, the labour is not unfavourably influenced by presence of an ovarian tumour; but unquestionably this immunity cannot be guaranteed. The remarkable results obtained by Mr. Spencer Wells and others, in operating on such tumours while the patient is actually pregnant, and without interfering with the progress of the pregnancy, necessarily affect any consideration of a prognostic nature applied to such cases.

<sup>1</sup> See cases of this kind in *Year Book of New Syd. Soc.* 1869–70, related by Mr Lawson Tait, Dr. Kidd, and Dr. Barnes.

<sup>2</sup> *Obst. Trans.* vol. xi.



## CHAPTER XLVIII.

DISEASES OF THE OVARIES—*continued*.

DIAGNOSIS OF OVARIAN TUMOURS FROM UTERINE TUMOURS.—Enumeration of the various Forms of such Tumours—Diagnosis as affected by the Condition of the Menstrual Function—Question of Pregnancy—Diagnosis as affected by other Particulars—History, Results of Examination, etc.—Use of Sound—Fluctuation Test—Diagnosis by Exploratory Incision.

DIAGNOSIS OF THE NATURE OF AN OVARIAN TUMOUR.—Enumeration—Complications—Duration—Condition of the Surface—Tapping as a means of Diagnosis.

## DIAGNOSIS OF OVARIAN TUMOURS.

It must be confessed that the diagnosis of the presence and precise nature of an ovarian tumour is now and then beset with extreme difficulty. The majority of cases are readily recognised, but there are numerous exceptional ones.

In the Appendix will be found a description of the procedure to be adopted in making an examination of the abdomen in order to discover the nature of a supposed enlargement or tumour. It will be necessary to proceed with the examination as there directed in order to ascertain that a tumour is actually present. When it has been determined that there is an abdominal tumour present, and further, that such tumour is *either ovarian or uterine*, we have, in the next place, to distinguish between these two categories.

The UTERINE series include—pregnancy, polypus, fibroid tumour; distension of uterus by fluid (menstrual or other fluid accumulations); distension by gas; abscess of the uterus; carcinoma of the fundus of the uterus; and fibro-cystic tumour.

The OVARIAN series include—simple encysted ovarian dropsy; multiple and compound cysts; composite tumours, partly cystic and partly solid, including ‘alveolar degeneration,’ ‘glandular’ tumours; cystic cancer; dermoid cysts; and solid tumours of the ovary—fibrous tumours, ‘adenoma,’ cancer, and simple enlargement; hydatid cysts; to these must be added, though not really ovarian, cysts of the broad ligament, also termed Wolffian cysts.

*The diagnosis between uterine and ovarian tumours as affected by the condition of the menstrual function.*—If there has been no menstrual discharge for some time previous, we may suspect pregnancy, and the next thing to be done would be to ascertain whether the size of the tumour, its shape, etc., fall in with this view of the case. If the tumour had only lasted a few months—say six—and there had been no menstruation for six or eight months, this would constitute a sort of preliminary justification of the pregnancy theory. If the tumour had lasted six years, and menstruation had been absent for six months, this would be against pregnancy; but not absolutely so, inasmuch as there might be a tumour *plus* pregnancy. If the external examination by hand, stethoscope, etc., give no indication, or insufficient at least on which to form a conclusion, then a vaginal examination, an examination of the breasts, etc., would be required.

The investigation of the history of the case and the examination practised giving, we will suppose, no evidence of pregnancy, the next step to be taken is to prove a negative, and to determine positively that the patient is *not* pregnant. This second question is more difficult, or may be more difficult, to deal with than the first, for very obvious reasons. Thus the case before us may be of this kind: the patient has not menstruated for four months, there is a tumour in the abdomen the size of the gravid uterus of six or eight months, there is no sound of a foetal heart, the breasts are painful, perhaps swollen, the uterus is, from the vagina, felt to be enlarged, but there is no ballottement. In such a case the observer will, on the data mentioned, find it difficult to exclude pregnancy—to prove the negative. It may be that his ear is defective, his touch untutored; the case may still be one of pregnancy; it may be one in which—as is not so very rare—there is a slight menstrual-like discharge for one or two months, or longer, pregnancy really dating from an earlier period; or it may be pregnancy with destruction of the embryo, and hydatidiform degeneration of the ovum, as in an instance recorded at page 874. The condition of the orifice of the uterus would, under such circumstances, help the observer either to prove the desired negative, or be sufficient to show him that the making of the diagnosis must be for a while postponed. The state of the lower segment of the uterus, also, would very greatly assist in the desired solution. Thus, in the case of an abdominal tumour as large as a seven or eight months' gravid uterus, it would be sufficient to prove the required negative, if we found that there was absolutely no evidence

of the os uteri being continuous with a rounded tumour, perceptible to the touch equally behind, in front, and at the side of the same. When the suspected abdominal tumour is of the size of the six months' gravid uterus, and upwards, the vaginal digital examination is of the greatest service in enabling us to prove the negative, when the case is really not one of pregnancy.

The next class of cases to be considered are those in which *menstruation is present*. If the patient be menstruating regularly, and the fact be undoubted, it may be almost certainly concluded that the tumour is not due to either one of the following conditions, viz. pregnancy, distension of uterus by fluid or gaseous accumulation, abscess of the uterus.

In fibroid tumours of the uterus, in carcinoma of the fundus uteri, in the various forms of ovarian disease, whether cystic alone, or composite tumours, or solid tumour, menstruation may be still regular, or comparatively so, or it may be completely absent. Presence or absence of menstruation may be thus equally observed in certain uterine and in certain ovarian tumours.

The menstruation criterion failing, we have to fall back upon the data afforded by other particulars of the history of the case, and the results of examination, abdominal, vaginal, etc.

We may dispose of several of the minor and less frequent of the causes of abdominal, uterine, or ovarian tumour, now remaining on our list, in a very few words.

*Carcinoma of the fundus uteri*.—The symptoms attending the presence of this rare disease would be likely to resemble those attendant on polypus of the uterus—*i.e.* copious bloody discharges, leucorrhœa—but in some cases such have been wanting. The supra-pubic examination by the hand would substantiate little beyond the existence of a tumour of a rounded character, the size of which is limited.

We may get rid of the *simply solid tumours* of the ovary in one paragraph, with one or two reservations. It is very rare to find a *fibroid* ovarian tumour of any considerable size, but the diagnosis of a large tumour of this kind from a large tumour of similar physical characters growing from the uterus would be next to impossible. Thus, simple cancer of the ovary rarely produces a tumour of any magnitude, although certain *composite* tumours of the ovary, partly cancerous, may grow to an enormous size. Moreover, simple cancer of the ovary is rare, unless in cases where there is extensive carcinomatous affection of the adjacent or other parts, and consequently profound constitutional disturbance.



*Enchondroma* of the ovary is a very rare disease, the existence of which even has been questioned, and it need not therefore detain us. With *simple hæmorrhagic effusions* we have no practical interest in this place. *Hypertrophy of the ovaries*, in the single case recorded by Dr. Bright, produced a tumour not larger than the kidney, and this was a most rare phenomenon. The *Wolffian cysts* of the ovary rarely exceed the size of an orange, but when larger the tumour could not be distinguished from an ordinary ovarian cyst. *Adenoma* of the ovary may constitute a hard tumour of considerable size. *Dermoid* cysts are rare, but in their physical characters, mode of growth, etc., do not present any very characteristic symptoms. They do not, unless in very rare cases, grow so large as the other more common cystic tumours of the ovary. The *hydatid* tumour of the ovary is very rare, and might be expected to be witnessed only in cases where the liver is affected, and in conjunction with symptoms of chronic or acute peritonitis. Practically, its diagnosis does not possess much interest for us in this place.

Without much difficulty, most of the conditions mentioned may be severally eliminated from the consideration. And that being done, the diagnosis now rests between the following conditions:—

Fibroid tumour of the uterus.

Polypus of the uterus.

Fibro-cystic tumour of the uterus.

Cystic disease of the ovaries, viz. simple, multiple, or compound cysts.

Composite tumour of the ovary.

Fibroid tumour of the ovary.

Sarcoma of the ovary.

Dermoid cyst.

And to these might be added the case of a large Wolffian cyst.

The conditions in question give rise to tumours which in many particulars resemble each other. The characters which they have in common are the following:—

The tumour is, or may be, rounded in shape.

It may be slightly movable in the abdomen.

It may have a more or less chronic course.

It may be associated with serous effusion into the peritoneal sac.

The firmness and resistance of the tumour may be equal in each.

The size of the tumour does not, unless in the case of a very large tumour, offer any help in the discrimination.

It is quite true that generally we find marked differences in respect of some of the foregoing characteristics; but these differences are not always so considerable, and by relying too implicitly on distinctions of this kind mistakes are frequently made.

The diagnosis between the various pathological conditions just mentioned is to be made by careful external and internal examination, and by consideration of the previous history. We have now no scruples as to using the uterine sound, having excluded pregnancy from the consideration by the previous analysis.

In many cases certain characters of the tumour, as felt through the abdominal parietes, are almost conclusive as to its ovarian origin; one of these is, presence of *distinct fluctuation* from one border of the tumour to the other. Fluctuation of this kind might be observed in that rare disease, fibro-cystic tumour of the uterus. We presume that all cases of ordinary ascites, or of ascites *combined* with tumour, or of distended bladder, have been excluded. The *absence* of fluctuation does not, however, indicate that the tumour is not ovarian.

If we examine the uterus from the vagina, digitally and by means of the sound, and clearly ascertain that the os is natural, that the cavity of the uterus has its normal length, the conclusion to which we may come is, that it is not a case of polypus of the uterus; but this is the extent of the knowledge afforded. Polypus of the uterus may be excluded in other ways from the consideration. Thus, the previous history in cases of polypus is usually one of occasional hæmorrhages, profuse menstruation, leucorrhœa, etc. The diagnostic signs are as follows: There is a hard, smooth, well-defined, abdominal tumour of slow growth, the uterus evidently enlarged from the vagina, its cavity greatly lengthened, a hard tumour is perceptible within the uterus.

The uterine and ovarian tumours have the following characters in common: The pelvic cavity may be found distended by a tumour firm to the touch in both cases. The abdominal tumour may be firm to the touch in both cases. It may be of slow growth in both cases. It may be rounded, smooth, and have a tolerably uniform surface, in both cases. The disturbance of the functions of menstruation and defæcation may be equal. In the shape of the tumour we find no absolutely distinguishing sign.

Let us pursue the investigation further. Supposing that by examining *externally* through the abdominal walls we are able to detect fluctuation in places, or even supposing that we find that in certain parts the tumour is softer and not so resistant as at

others, this would enable us to say the tumour is of ovarian origin. To this statement there is one single reservation—that if the rare fibro-cystic tumour of the uterus were present, the sign in question might prove deceptive. The absence of such partial fluctuations, or of such partial softness, does not, however, prove that it is uterine. Or, supposing we found the surface of the tumour very unequal, presenting hard, smooth, rounded, distinct elevations three or four or more in number, and varying in size from that of a walnut to that of an apple or larger—these elevations being evidently integral parts of a central mass, the consistence of which is identical with that of the elevations—this would prove it to be a case of fibrous tumour of the uterus. On the other hand, in the case of very large fibrous tumour, the surface is quite smooth and uniform, and irregularities and eminences of the surface are then quite wanting. Rarely, the hardness generally characteristic of fibrous tumour is wanting. In a few cases there is actual softness and apparent fluctuation. Such a condition would make the diagnosis very difficult. The *duration* of the tumour would in some degree assist, but we are now and then misled by the patient's assertion that the tumour has existed only a short time, when the opposite is the actual fact. A large fibroid tumour sometimes exists for years unknown to the patient or to any one.

Before describing the internal examination, the *natural history of an ovarian or extra-uterine tumour, so far as relates to its growth and the effect of that growth on the position of the uterus*, may be considered.

A fibrous tumour growing on the peritoneal surface of the uterus, and reaching a large size, and an ovarian tumour, may affect the uterus in like manner. Thus the fibrous tumour may in its growth carry the side, or back, or front of the uterus—according as it may happen to be placed—along with it; the cavity of the uterus may be thus, in the case of a very large fibrous tumour, very considerably elongated; or, it may leave the cavity of the uterus unaffected, the body of the uterus undergoing not an expansion but an actual atrophy, and under such circumstances the small atrophied uterus is flattened and pressed downwards into the pelvis, while the large fibrous growth mounts up into the abdomen. It is evident that the internal examination by the sound will reveal correspondingly different signs, according as one or other of the events mentioned happens. Take next the case of an ovarian tumour. Here the circumstances are precisely analogous. The



ovarian tumour, in its growth up into the abdominal cavity, either draws the fundus uteri up with it, thus necessarily lengthening the uterine cavity, or it presses the whole uterus downwards, the length of the uterine cavity being in nowise altered. Again, whereas it most commonly happens that the ovarian tumour presses the uterus forwards while engaged in elongating it, the reverse may be the case, the uterus being sometimes posterior, and the pelvic part of the ovarian tumour may push the uterine fundus to one side of the pelvis, elongating its cavity at the same time. Another effect which may be produced on the uterus during the growth of an ovarian tumour, is, propulsion downwards of the lower segment of the uterus concurrently with dragging upwards of the superior segment. This may happen when the ovarian tumour fills the pelvis and grows there, at the same time that it grows also upwards into the abdomen.

And now, with the above facts before us, the value of the signs derivable from digital examination *per vaginam*, and from the use of the sound, will be more intelligible.

If there be a large tumour in the abdomen and the sound pass into the uterus for a distance of three inches or upwards, and the cavity of the uterus be found more anteriorly than it should be, this will probably indicate its ovarian nature, but not certainly, for it may be a case of large fibrous tumour growing behind the uterus. The history of the case will now probably throw light on the subject. Thus, if the abdominal tumour increase quickly, it is ovarian (the reservation being again made as to presence of the rare fibro-cystic tumour of the uterus); or if the abdominal tumour be distinctly fluctuating, it is ovarian. It will be well to recollect that the sound might pass in this direction and in this manner in a case of large polypus of the uterus.

In a case which came under my notice, the vagina was drawn upwards and ended in a cone just behind the os pubis; the cervix was obliterated so far as its vaginal portion was concerned, and the sound entered for upwards of three inches. There was a hard unyielding tumour felt behind the vagina, extending upwards into the abdomen. My first impression about this case was that it was a large fibrous growth from the posterior part of the uterus; but having examined the abdomen, and finding there a tumour which was as large as the head of an adult, the diagnosis made was that the tumour was ovarian; and this diagnosis was justified by the rapidity with which the abdominal tumour subsequently increased in size. Again, another case may be mentioned to show particularly how the diagnosis is made, and on what data it rests.

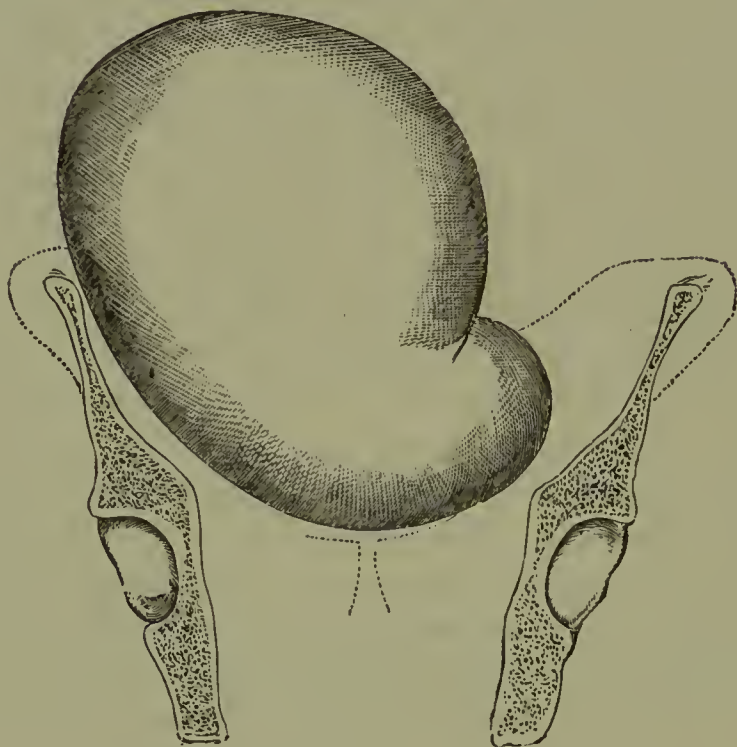
The patient, æt. 26, had been married four years, never pregnant, abdomen greatly enlarged, suffering severely from dyspnœa; she was very weak and ill. Catamenia absent for eight months, but there had been a slight show fourteen days before. Examining *per vaginam*, the uterus was found to be small, atrophied, flattened, and pushed a little downwards; its long axis lay horizontally instead of nearly vertically; above it was a tumour. Examining through the abdominal walls, there was found to be marked fluctuation below a line extending from the splenic region to the right crista ili, tumour well defined by percussion, but not by palpation. The diagnosis was ovarian dropsy. The vaginal examination showed absence or enlargement of uterus; the abdominal showed fluctuating, distinct tumour; the results of the two methods of examination indicated clearly the diagnosis. These two cases are not mentioned because they presented anything remarkable in the way of difficulty—rather the reverse. Fig. 199 gives a view of the abdominal tumour in another case of ovarian dropsy, where the tumour was of considerable size. The uterus was pushed downwards and backwards.

To appreciate more particularly the value of the indications given by the sound, we may divide our cases into two classes—those in which the uterine cavity is found decidedly elongated and those in which it is not. The cavity may be decidedly elongated, as above stated, from a fibrous growth of the uterus or from presence of an ovarian tumour. In all cases it is not possible during life to diagnosticate between these two conditions, but generally the attendant circumstances enable us to do so pretty easily. In the second of the cases above related, the fluctuation of the abdominal tumour, its rate of growth, and absence of uterine enlargement, were conclusive; in the first of the cases, the rate of growth, too, was one of the points which were of importance. But we sometimes meet with cases where the uterus is lengthened, the tumour so close to the uterus as not to be separable from it; where the tumour grows slowly, and where, nevertheless, the case turns out to be ovarian. When the tumour grows rapidly, this is in favour of its ovarian nature, but the absence of this rapidity of growth does not prove the contrary. To mistake a uterine for an ovarian tumour is to commit an error of greater importance than a mistake of an opposite kind, for the reason that serious operations are undertaken when the tumour is supposed to be ovarian, which would not be contemplated if the tumour were considered uterine. The following are the most reliable distinctive signs in a case presenting difficulty:—

*For* ovarian tumours, are, rapidity of growth, impediment of the circulation in the lower extremities, evidenced by presence of

œdema, varicose state of veins, severe constitutional disturbance—*e.g.* great weakness and debility, emaciation, and pelvic continuous pain. These signs are in fact the signs usually present in cases of solid tumour of the ovary of cancerous nature, or in cases of cystic cancer, where the growth happens to be for a time stationary. Absence of such signs is, however, not so strongly evidence of a negative kind, for some chronic ovarian tumours give rise to very little mechanical or other disturbance. If, in a case of elongation of the uterine cavity, the sound passed quite into the centre of a large tumour, this would almost, but not quite, conclusively indicate its character. If the sound passed laterally,

FIG. 199.



or marginally as it might be termed, as regards the tumour, and the tumour were felt from the vagina to be fluctuating, this would favour the theory of its ovarian nature.

The cases in which there is no ascertainable elongation of the uterine cavity come next. Here the diagnosis between ovarian and uterine tumours is not usually attended with so much difficulty. The tumour, if uterine, is most likely to be a large, slow-growing fibrous tumour, causing little inconvenience except from the great size to which it may attain. If the tumour were fluctuating, as ascertained by a vaginal or abdominal examination, it could not, in all probability, be uterine—the rare fibro-cystic tumour of the uterus being excluded from consideration; but if



there were no fluctuation, considerable difficulty might be experienced in deciding whether the case was one of large fibrous or other solid tumour of the ovary, or a fibrous semi-pedunculated tumour of the uterus. There are, in fact, no signs enabling us positively to distinguish between them.

It must be recollected that sometimes the uterus becomes embedded in and surrounded by a mass of disease of ovarian origin. The composite tumours of the ovary occasionally grow in this manner. The signs afforded by use of the sound might, in such a case, lead to the supposition of uterine disease; the *general* symptoms would usually be of ovarian character.

There appear to be some cases in which the diagnosis is really impossible. The difficult cases are those in which a slow-growing, not large, tumour exists, which it is just as probable is ovarian as uterine. A pedunculated or even a sessile fibrous tumour of the uterus may occupy the same position, present the same physical signs, produce even the same symptoms, as a fibrous or solid tumour of the ovary. We may make a diagnosis which is an infinitely probable one, but which it is just possible *may* be wrong, viz. that the tumour is uterine because an ovarian tumour of this kind is so rare; and this is all we can do or may be able to do in such a case. If we encounter a tumour of this kind at an early period of its growth, and before there has been afforded an opportunity of knowing whether it be a slow-growing tumour or not, the diagnosis is still more difficult, for then the tumour may be a non-fluctuating specimen of ovarian cystic disease, or any one of the other varieties of ovarian disease, or it may be a uterine fibrous tumour. The nature of such cases can only be definitively diagnosed by waiting, unless indeed we use a grooved needle and endeavour to obtain thus some notion of the nature of the contents of the tumour. When the necessity for a diagnosis of this kind arises, the tumour is generally a pelvic one, not having yet passed up into the abdomen.

Looking carefully over the records of cases where mistakes have been made in diagnosis—where ovariectomy, for instance, has been attempted, but the tumour found to be uterine—it will be seen that the element of ‘time’ was not allowed to have its due weight in the decision arrived at prior to the commencement of the operation. Thus in one case the tumour found to be ‘uterine’ had existed for four years; in another there was a cyst connected with the uterus of eight or nine years’ duration; in another a ‘large fleshy tubercle of the uterus’ of ‘many years’ duration;

in another a solid vascular tumour connected with the uterus six years. It is probable that in these cases the tumour was solid, at all events non-fluctuating, and it is likely that similar mistakes may be avoided in future, when hard tumours simulating ovarian tumours are present in the abdomen, by attention to the diagnostic value of this element of time.

The diagnosis of *fibro-cystic tumour of the uterus* is one of great difficulty, because we have here the two things combined—a solid outgrowth from the uterus which itself contains cysts. The difficulty arises from the physical resemblance this bears to a case of cystic disease of the ovaries. To estimate aright the difficulties of the question and the best method of surmounting them, careful study of the cases actually published is essential. Some of these cases are given at length in the chapter on ‘Fibroid Tumours of the Uterus.’ Mr. Spencer Wells mentions two circumstances of assistance in the distinction: one is, that the colour of the cyst-wall in fibro-cystic uterine tumours, when laid bare by abdominal incision, is darker than that of ovarian cysts; another, that the cysts in the former case contain a thin serum with 5, 10, or 15 per cent. of blood intimately mixed with it, and not separating until after standing some hours.<sup>1</sup>

*Diagnosis by exploratory incision.*—In some cases the operation of ovariectomy is undertaken with full recognition of the fact that it *may* be found that the tumour is uterine in origin and that it may prove in consequence non-removable. After the incision into the abdomen is made, the hand is carefully passed downwards by the side of or behind the tumour, whereupon the information necessary is obtained. Adhesions are not generally present so as to prevent this exploration in cases of fibroid tumour of the uterus. These exploratory operations are not generally attended with much risk.

We have here spoken of the difficulty of the diagnosis between ovarian and uterine tumours. Between these two series and *cystic enlargement of the kidney*, a very rare disease, the diagnosis is equally difficult, and generally only made by means of exploratory operation.

#### DIAGNOSIS OF THE NATURE OF AN OVARIAN TUMOUR.

The diagnosis having been advanced so far that we are able to pronounce the tumour present to be of ovarian character, it remains to determine more precisely the nature of the tumour.

<sup>1</sup> *Diseases of the Ovaries*, vol. i. p. 362.

It will be unnecessary to consider here the smaller and less important of the tumours originating in the ovaries; the remarks previously made enable us to dispense with this, and we shall now only consider the diagnosis of those which are practically important, and which may attain great magnitude, or at least produce considerable and marked enlargement of the abdomen.

The ovarian tumours now before us include:—

Simple, multiple, and compound cysts.

Composite tumours, and cystic cancer.

Solid tumours.

In addition to the conditions in the foregoing list, a diagnosis of the nature of an ovarian tumour will not be complete which does not have regard to the complications liable to be observed. One of the most common of these is *ascites*; another, the existence of which is, however, more liable to be overlooked, *pregnancy*.

The diagnosis of the several ovarian tumours above mentioned, one from another, is sometimes easy, at other times extremely difficult, at other times again simply impossible, by any kind of examination we may devise, short of exploration by means of tapping, and in some cases we cannot even then obtain such a perfect knowledge as may be desirable. In the majority of cases, however, we can get as much information as is needed to enable us to decide as to the treatment. Attention is now directed simply to the determination of the *pathological* character of the tumour. There is another kind of diagnosis, a sort of mixture of diagnosis and prognosis, the consideration of which comes under the head of ‘Treatment.’

*The age of the tumour.*—If we find the tumour has been growing rapidly, and has only dated from, say, a year previously, we may pretty safely exclude from consideration the simply solid tumours of the ovary and dermoid cyst. If the tumour has been growing slowly, say three years or longer, and the subject of the case be a young or, at all events, not a very old woman, this would lead us to consider the possibility of the case being one of dermoid cyst; if on examination, under such circumstances, a distinctly fluctuating tumour is ascertained to be present, this would militate against such a view of the matter; but if the tumour is found to be non-fluctuating, it may be either a case of dermoid cyst, or a case of composite tumour, or, possibly, of compound cyst of the ovary unusually slow in growth. A slow-growing, non-fluctuating, well-defined, smooth tumour, which on other grounds has been determined to be ‘ovarian,’ in a woman not old, is more likely,



however, to prove to be a dermoid cyst than anything else. Judging from experience, the actual diagnosis of these dermoid cysts during life and before operation is not easy, and this is partly due to the fact that this condition is sometimes met with in association with the more ordinary form of cystic disease of the ovary. Respecting the fibrous tumour of the ovary, it is to be remarked that its diagnosis from other tumours of the ovary is not so difficult as its diagnosis from uterine pedunculated fibrous tumours. Its very slow growth, hardness, and well-defined outline are the principal characteristics. 'Adenoma' of the ovary, which may give rise to a solid tumour of considerable size, would be distinguished by its comparative rapidity of growth.

When we have before us a case in which the abdomen has become markedly enlarged in the course of the previous year, this enlargement being due to the ovarian tumour alone, and not partially to ascitic effusion superadded, we may nearly safely leave fibroid tumours and dermoid cysts out of the consideration. The further diagnosis is guided by the size, the consistence, the resistance, smoothness or inequality, rapidity of growth of the tumour, by the symptoms to which it gives rise, and by the general condition of the patient's health.

We may take the chief of these criteria one by one, and ascertain what information is to be procured from them as to the nature of the tumour.

The *condition of the surface of the tumour* affords, necessarily, more information respecting the physical character of the tumour than can be obtained in other ways. Supposing we find the tumour perfectly smooth and uniform, and offering equal resistance at all parts of its superficies, whether felt from the vagina or through the abdominal walls, such a tumour is likely to be made up of one large cyst. To confirm this view of the case, we might have the additional fact that the tumour presents fluctuation from one side to the other, and from above downwards. We might not get fluctuation, and nevertheless the case may be still one of simple cyst, for fluctuation cannot always be made out when the cyst is very tight. Thus the fluctuation test might or might not be available. A smooth uniform tumour, not fluctuating in the manner alluded to, might prove to be one of compound cysts of the ovary, one large cyst being the common covering for a large number of smaller cysts within it. The fact that the tumour is large, smooth, and uniform as regards its surface, even when fluctuation is absent, is presumptive evidence that the tumour is

not a composite tumour of the ovary; it is more likely to belong to the other series, though on this point there is no rule. Sometimes we find that while, generally speaking, the tumour is smooth and rounded, the hand, slightly pressed inwards, encounters one or more rounded bodies *within* the larger tumour. This is a condition of things only met with when there is one large cyst, not tightly filled with fluid, and having within it other cysts; and under such circumstances we get therefore more information as to the nature of the interior of the tumour. Care must be exercised not to confound with this condition one which rather closely resembles it, viz. the combination of ascites and ovarian tumour. Such a mistake could only be the result of great carelessness, but still it might be made. An event which is quite possible is that there may be a large cyst giving the fluctuation sign at all parts of the surface, and which therefore conveys an idea that the whole tumour is made up of this cyst, whereas it may prove afterwards that within this cyst is a considerable mass made up of several smaller cysts. The circumstances are sometimes such, that until a portion of the fluid in the large containing cyst is evacuated by tapping, the true nature of the case cannot be made physically evident.

On the other hand, when we find the tumour *unequal* as regards its surface, we draw inferences which may be approximatively stated as follows: If the tumour present a large rounded eminence at one point, a second eminence of a like character at another, the depressions between forming divisions across which fluctuation is not transmitted, and we find the tumour to be made up of two or three such large eminences, the whole forming a tumour which possibly extends up to the umbilicus or some way beyond it, then we have probably to do with a case of multiple cyst of the ovary, or possibly there may be a tumour growing from both ovaries. Fluctuation evident at all parts of the surface, limited as above stated, would be evidence nearly conclusive that the case is not one of compound cysts, or one of composite tumour. Absence of such fluctuation might be due to great tightness of the cysts, or to great thickness of the walls of the cyst, to the presence of jelly-like contents; or it might be that each of the large cysts contained other smaller ones.

To take another case: we find the tumour unequal as regards its surface, it presents a rounded eminence at one part, and fluctuation is here evident; while close to it is felt a portion of the surface harder and more resistant; at other situations the surface

is perhaps still more irregular. Such a condition might be due to presence of compound cysts, or to presence of a composite tumour, either glandular (cystic sarcoma, alveolar degeneration) or cystic cancer of the ovary; or there might be tumour of both ovaries. Rounded nodular eminences on the surface of an otherwise smooth tumour may indicate either presence of small cysts at the situations in question, or of cancerous nodules; but we may draw one important inference from their existence, viz. that either the mass beneath these nodules is composed of solid matter of some kind or other, or that the whole tumour is a compound cystic one; the growth of small cysts *on* the surface of simple cystic tumour, or multiple cystic tumour of the ovary, is not common.

It is only in the case of rather small tumours—*e.g.* tumours not exceeding the size of the head of an adult—that much difficulty is found in determining, approximatively at all events, the physical construction of the tumour. When the tumour is of large size, if it be a case of simple or multiple cysts, there is evident generally, at some period or other, fluctuation, and the surface is smooth and comparatively even. But in the case of a large composite tumour, or in the case of a large compound cystic tumour, there is at some situations a marked peculiarity as regards the surface, in respect to the consistence and degree of resistance of the kind above alluded to. The diagnosis of the nature of the smaller tumours requires a more particular examination. It has been already stated that a moderate-sized rounded tumour, in which fluctuation is not evident, may be either a simple cyst with very tight walls, having very dense contents, or a tumour of compound or composite nature. The tumour may be irregular on the surface or not: if irregular, this will help us in the way previously remarked, but if not, the diagnosis has to rest on other data. Under such circumstances, something is often to be made out from the general view of the case, apart from the physical characters of the tumour. Rapidity of growth, in the case of a non-fluctuating tumour, would incline us to believe it to be one of compound cysts or a composite tumour. ‘Rapidity of growth’ may be considered to be present if, in the course of six or eight months, the tumour has attained the size of a pregnant uterus of seven or eight months’ gestation. Rapidity of growth, alone, means nothing, for we see repeatedly that large cysts, after being emptied by tapping, refill in a very short space of time; but if we have before us a non-fluctuating tumour, the fact is of some importance in determining the construction of the tumour.



Is there anything which can be learned from the *position* of the tumour, as to whether it be a purely cystic tumour, or a compound cystic tumour, or a composite tumour? Nothing absolutely. We may find a large semi-cystic tumour occupying the abdomen, and not at all engaged in the pelvis (the more common event); or we may find a part of such a tumour in the pelvis and a part in the abdomen. And if the tumour be made up of compound cysts, or if it be a composite tumour, we may find a portion of the same in the pelvis, or the whole may have passed upwards into the abdomen.

We may now consider the diagnosis of that class of cases in which, having made out by previous examination that the condition present is either 'compound cystic tumour' or composite tumour—it is considered desirable to pursue the analysis still further. Speaking of these cases generally, it is to be remarked that in each the growth of the tumour may be very rapid, but it is not necessarily so. In each of them there is cyst growth going on, which growth may proceed with different degrees of vigour at different parts of the tumour. The superficial part of the tumour may be therefore solid to the feel, or it may be chiefly cystic. The degree of resistance communicated to the touch is not the same in all cases, even when the tumour is identical; and during life no very precise differentiating indications can be drawn from data of this kind. The degree of hardness may not in a case of cystic cancer be very different from that present in a case of compound cyst. We may often, however, learn something from the condition of the surface of the tumour. Thus the presence of hard knobs or excrescences on the surface is presumptive evidence for cystic cancer, if we find they are unlike small cysts in shape or other physical characters. Absence of such knobs is not conclusive of the non-cancerous nature of the tumour. Again, the association of ascites in these cases is of some importance. Ascites may be present in association with all kinds of ovarian tumours, but it is more frequently found to be present when the ovarian tumour belongs to one of the series now under consideration; it is most common when the tumour is composed of cystic cancer. And hence, when the tumour presents knotty hard elevations, and there is ascites, a suspicion would arise that the tumour is of a cancerous nature. The other points to which attention should be directed, for confirmation or otherwise of this suspicion, are of a general character. The more simple cystic disease of the ovary produces, at first certainly, but little effect on the health of the

patient; but in the case of cystic cancer of the ovary, we find that although the tumour is not very large, and has possibly not existed a very great length of time, yet the health of the patient has notably given way.

Cystic cancer of the ovary has ordinarily a course differing from that of glandular tumours. The latter often grow persistently, and with such great rapidity that the whole abdomen may become, in a short space of time, distended to the utmost by a mass made up partly of cysts, partly of a sarcomatous substance. In cystic cancer the tumour is not so large.

The 'compound cyst' tumour of the ovary, on the other hand, presents characters somewhat allied to those observed in more simple cystic disease; but there is great variability; and this arises from the fact that the tumour remains, sometimes, quiescent for a time, and then, perhaps suddenly, starting into active growth, produces rapidly enormous enlargement of the abdomen.

*Possible complications of ovarian tumour, to be considered in arriving at a diagnosis.*—When an ovarian tumour rapidly increases in size, the question should always occur, Is the enlargement due to *pregnancy*? If the tumour be of a solid character, or partly so, this is more important; but in all cases the first question which should be determined has reference to the possibility of pregnancy having supervened. Proper means must be taken, by vaginal examination, auscultation, etc., to decide this question. Experience has shown that the mistakes which have been made in undertaking operations in ignorance of the presence of pregnancy, have arisen, not from the inherent difficulties of the diagnosis, but from circumstances generally controllable.

Ascites is another complication which is rather common. It is more frequently present when the ovarian tumour is irregular in outline than when the shape is more rounded and equable, and ascites is frequently conjoined with a malignant ovarian tumour. It is sometimes necessary to get rid of the ascitic fluid by tapping, in order to explore satisfactorily the ovarian tumour.

Another important though rare complication of ovarian tumour is presence of gas within it. Sometimes an ovarian cyst bursts into the intestinal canal, and gas enters the cyst. Thus an ovarian tumour, one day dull on percussion and fluctuating, may on another be found to have become tympanitic. The occurrence is rare.

*Tapping as a means of diagnosis of the nature of a presumed ovarian tumour.*—Under some circumstances it is

necessary to tap an ovarian tumour in order to release the patient from suffering; at other times this operation is undertaken as a curative measure alone, or combined with other proceedings which will be discussed in their proper place. At other times, again, tapping is had recourse to in order to throw further light on the diagnosis.

The tapping, when performed for the former of the above reasons, can be always made subservient to the further diagnosis of the nature of the tumour.

An important piece of information relates to the nature of the *contents* of the tumour. Sometimes when tapping is performed it happens that no fluid can be made to pass through the canula on withdrawal of the trochar. This may be due to great viscosity of the contents, or to the fact that in the interior of the tumour there are a multitude of small cysts, or to the circumstance that the tumour is of a solid nature. By passing a probe through the canula something more may be learnt. The fluid which comes away is different in different cases, as already stated, and it does not appear that examination of the fluid affords a decided indication as to the kind of ovarian tumour present. To this there is one exception in the case of the dermoid cysts of the ovary, which contain often a fluid which has this peculiarity, that on cooling it undergoes transformation into a solid mass resembling butter. Presence of such fluid would show that we have to do with a dermoid cyst. In a case related by Dr. Alex. R. Simpson,<sup>1</sup> there was removed from an ovarian cyst of this kind a single red hair, and it was subsequently found that the cyst contained a mass of tangled hair. It was further noticed that this hair had the same colour as that covering the pubes of the patient.

In cases of the more common kind, however, the nature of the fluid will not inform us as to the nature of the ovarian tumour.

To distinguish between an ascitic and an ovarian fluid is important. Ascites and ovarian dropsy should be distinguished on other data than an examination of the fluid procured by tapping. The microscopic and other characters of the fluid are of service in determining its origin (see p. 705). The cells and granules vary greatly in size even in the fluids from different cysts of the same ovary: the fallacies involved in a dependence on these characters for a diagnosis are, that the ovarian fluid may have burst into the abdomen, become ascitic in fact, and thus mingled with peritonitic effusion; further, lymph and pus

<sup>1</sup> *Edin. Med. Journ.* March 1862, p. 886.



are not uncommonly found in ovarian cysts—hence a microscopical examination of the fluid may serve to strengthen an opinion, but alone ought not to decide one. The results of tapping in cases of fibro-cystic tumour of the uterus would not materially aid the diagnosis. Tapping and examination of the fluid removed is an important means of diagnosis in cases where the tumour is possibly of *renal* origin. Urea would be searched for under such circumstances.

If, after tapping and emptying an ovarian cyst, we find the whole of the ovarian tumour gone, we may reasonably conclude that the case is one of simple ovarian cyst. Frequently it happens that immediately after tapping there is evidence of the existence of a second cyst, or of a solid mass or masses which were not perceptible before, and of whose existence as parts of the tumour we could not otherwise have been informed; and a case which at first appears to be one of simple cystic disease may thus prove to be one of compound cystic tumour, or of composite tumour of the ovary.

If after tapping we find a tumour still remaining, this may be another cyst from the same ovary, contained within the first, or simply in juxtaposition with it; or it may be a solid tumour or mass of cysts; it may be a cystic tumour of the other ovary, or it may be a tumour of the uterus. The diagnosis of this secondary tumour should be made carefully and with due consideration of the possibility of pregnancy.

## CHAPTER XLIX.

DISEASES OF THE OVARIES—*continued*.

TREATMENT OF OVARIAN TUMOURS AND DROPSY.

OVARIOTOMY.—Statistics—Present and former Statistics of the Operation—Mr. Spencer Wells's 1,000 Cases.

TAPPING as Preliminary or as Substitute for Ovariectomy—Danger of Tapping—Method of Tapping.

INDICATIONS FOR OVARIOTOMY—Difficulties and possible Contra-indications—Decision—Method of performing the Operation of Ovariectomy—The Abdominal Incision, the Removal of the Tumour, the securing of the Pedicle—Various Methods of dealing with the Pedicle—The Clamp, the Cautey, Ligature, and Dropping of the Pedicle—Drainage after the Operation—The Antiseptic System—Precautions during and after the Operation—Various Opinions on Value of the Latter—Cleansing the Peritoneum—Sutures—After-Treatment—Shock, Hæmorrhage—Septicæmia—High Temperature, Means of Lowering it.

Ovariectomy during Pregnancy.

PALLIATIVE TREATMENT OF OVARIAN TUMOURS.

## OVARIOTOMY.

It is no longer necessary, as was the case fifteen years ago, to offer an apology for the operation of ovariectomy, to dilate on its advantages, and to combat the arguments of those opposed to it. The signal successes of the numerous operations of late years—one operator (Mr. Spencer Wells) counting his cases over one thousand—the less numerous but equally decided results of other operators, have now removed by the demonstrative method the objections which were entertained to a formidable operation; and ovariectomy is now the recognised operation for, and the recognised best method of dealing with, almost all cases of ovarian tumour and dropsy where the operation in question can be performed.

The operation of ovariectomy, first suggested by William Hunter, was first performed in America. It consists, as need hardly be stated, in excising the whole of the diseased ovary, an incision for this purpose being made in the abdominal parietes. At first the operation was received with disfavour, though some few operators were tolerably successful. Dr. Clay of Manchester first performed





The last twenty years have been very fruitful in regard to the success from the operation of ovariectomy. The preceding paragraphs indicate the results up to the year 1860. In the last edition of this work (1872) I stated that the results obtained in the preceding eleven years warranted the expectation that 70 to 80 per cent. of cures might be expected when the operation was undertaken by experienced operators.

But during the last ten years the success of the operation has made great strides. The operation has passed from a possibly successful operation to an almost certainly successful one, and the mortality may be said to be now about 10 per cent. or even less.

Mr. Spencer Wells has performed the operation in over 1,000 cases (up to June 1880), with 231 deaths and 769 recoveries. Taking the several series of 100 cases, the deaths in the first 100 cases were 34; in the second series of 100, 28; and in the following series 23, 22, 20, 28, 24, 24, 17, 11; thus showing a very great diminution in the mortality during the last four years. Other operators have emulated the success of Mr. Spencer Wells: in England, Scotland, on the Continent, and in the United States of America, might be mentioned the names of operators who have each performed large series of ovariectomies with very great success and with a very low mortality.

The first question to be determined when the case is judged to require operative treatment, is whether the operation of tapping or ovariectomy is to be preferred.

Tapping is a palliative measure. In a few cases it has proved curative. It is adapted for cases where the tumour is composed of a simple large cyst filled with fluid. It is sometimes necessary as a preliminary procedure to ovariectomy, either to render the diagnosis more certain, or to relieve the extreme dyspnoea and embarrassment of the circulation present, and thus to place the patient in a better state for the more severe operation.

In some cases patients are tapped, and no refilling of the cyst takes place for some time, for months or for even longer—to a distressing extent at least; but as a rule the cyst refills with rapidity, and to relieve the patient tapplings are necessary again and again, the interval becoming progressively shorter and shorter after each operation.

It was formerly thought that tapping, by setting up adhesions, rendered subsequent attempts to perform ovariectomy more difficult. Mr. Spencer Wells's statistics, adduced in a paper read at the Royal Medical and Chirurgical Society in April 1869, do not,

however, bear out this view, at least to any weighty extent, for the percentage of mortality of ovariectomy after repeated tapping, compared with that of ovariectomy without tapping, was only 1 per cent. greater in the former than in the latter case.

Mr. Spencer Wells<sup>1</sup> in his lectures advises tapping to be performed first in all cases of simple cyst, and he stated that he knew of many cases where the cyst never refilled after the tapping.

The dangers connected with tapping are—1. The possibility of puncture of a large vessel in the abdominal parietes. 2. The possibility of puncture of a vessel of the cyst itself, which might subsequently continue to pour out blood. 3. The production of septicæmia. This latter would be prevented almost certainly by antiseptic precautions. 4. The escape of irritating cyst contents into the peritoneum and production of inflammation thereby. It appears that as a matter of fact large experience does not show that these dangers are considerable, and they seem much less than they were formerly supposed to be.

The operation of tapping is usually performed through the abdominal parietes, when the object is palliative. The operation of tapping from the vagina is generally performed with other views, to be spoken of presently. In some cases ovarian cysts have been evacuated by tapping from the rectum.

Tapping was for a long time the only operation attempted in cases of ovarian dropsy. In some cases tapping is impossible, as when the tumour consists of many cysts, or when it is wholly solid: these cases do not require to be discussed. If the distension of the abdomen for which the relief is necessary has been slowly advancing, there appears no reason why tapping should be postponed; but if it be recent, it is advisable to wait longer before operating—that is to say, when the cyst is single, and no indication for ovariectomy is present.

In some instances the result of examination is, that we find it difficult to say whether the whole of the tumour be due to the presence of a single large cyst or not: here the presence of *other* cysts in a state of growth at the base of the tumour would determine us on advising ovariectomy in preference to tapping. In such cases it may be deemed better to pursue the following course: to tap the cyst and ascertain, in the manner previously pointed out, whether such secondary cysts be present or not, and, in the

<sup>1</sup> Lectures at the Royal College of Surgeons, 1878. *Brit. Med. Journ.* July 1878.

event of such being found, to proceed at once with the more radical operation of ovariectomy.

After all, in the majority of cases the decision will probably more and more incline in favour of ovariectomy rather than tapping, the risk of the radical operation being so little in excess of that of a measure which is only palliative.

*Mode of performing the operation of tapping.*—The readiest, and, on the whole, the safest method of performing the simple operation of tapping is to place the patient on the back, and to allow the fluid to escape through a flexible tube into a vessel placed by the side of the bed or couch. The best situation at which to make the perforation in the abdominal walls is the median line; there being thus less risk of wounding vessels. It is best to make a small incision in the skin first, in order to allow the trochar more easily to pass through the abdominal wall. The canula should have attached to it, as in Mr. Spencer Wells's instrument, a long india-rubber tube. The contents of the cyst escape on withdrawal of the trochar. Mr. Wells uses a rather large trochar, the point made like a steel pen, and a blunt canula is added so as not to injure the cyst wall opposite. It is hardly necessary to observe that the bladder should be very carefully emptied by the catheter before proceeding to the operation. If during the operation the canula become choked up, a long probe should be used to remove the obstruction. During the escape of the fluid gentle pressure may be exercised on the abdomen. After completion of the operation a wide flannel bandage should be carefully applied, the wound being previously covered over by a piece of lint soaked in collodion or carbolised oil, folded in the form of a compress. Should fainting occur during the operation, brandy or other stimulants must be given, and the cyst evacuated more slowly. Quiet after the operation is very essential, and the body should be kept as nearly as possible immovable for at least twenty-four hours after the operation, the catheter being used to evacuate the bladder.

The cyst inflammation liable to arise after tapping is accompanied with great pain, great tendency to nausea, or actual vomiting, and general symptoms of peritonitis. Warm poultices, iced drinks to allay the vomiting, are the best remedies in such cases, and small quantities of stimulants—brandy or champagne—may also be administered. If the symptom assume a severe form, the operation of ovariectomy should be performed forthwith.

*Tapping followed by pressure.*—This is a method of treating cases which at the present day it seems useless to discuss.



*Tapping followed by iodine injection* is also a procedure not necessary now to discuss, as it has become discontinued.

We may next consider the *indications for ovariectomy*. The average opinion among those in favour of this operation may be stated as being to the effect that when the ovarian tumour is growing fast, and when by reason of this, or in some other manner, life is threatened at no distant period, the operation is to be recommended. But it is necessary to be more explicit. If our examination convinces us that the tumour is of cystic nature, that it is growing fast, that it is made up of three or more cysts, and the general health is threatened, this seems a case for ovariectomy. Equally so if the tumour be partly cystic, partly solid, this solid matter not being cancerous. The alveolar tumour of the ovary falls under the same category, and also cases of dermoid or fat cysts 'progressive' in nature. If the ovarian tumour be simply fibrous the operation is less likely to be required, but even here the tumour may excite so much irritation by its presence that an operation is a better procedure than letting the tumour alone. These solid tumours have an atmosphere of doubt about them, however, which puts them out of ordinary categories. The operation in such cases is often an 'exploratory' one, the operator determining beforehand to remove the tumour if possible (see 'Diagnosis').

Upon the next class of cases the decision is sometimes not to be made at once. They are cases in which there is only one cyst in the ovary, or possibly two, and the disease is not strictly a progressive one; or, at all events, this quality of it has not yet declared itself. In some such cases, ovariectomy is not at all events immediately required, but there are cases in which there are good reasons for preferring to recommend ovariectomy, viz. where there is rapid formation of fluid requiring frequent tapping, and threatening life in this manner. A tendency of this kind is hardly less destructive to the patient than the tendency to the rapid formation of other cysts. The arguments for ovariectomy in cases where the 'badness' of the case falls short of that just spoken of, are, that the earlier the operation is performed the safer it is, and the less risk also that the operation will be interfered with by the presence of adhesions. The difficulty experienced in deciding as to what is the best thing to be done in individual cases is one which cannot be got over by any amount of generalisation on the subject, and in a doubtful case small things turn the balance.

Another class of cases in which ovariectomy might be performed

are those in which, although the case is not a 'favourable' one for operation, the disease is so far advanced that the patient must otherwise certainly die soon, and where the operation might possibly save life.

Mr. Spencer Wells<sup>1</sup> says on this subject: 'In cases where tapping could be of little use, or has been tried, and fluid was re-formed after repeated tapplings, and all ordinary treatment has proved of no avail, then arises the question, "Is this a case in which ovariectomy should be recommended to a patient?" the common-sense rule that I have been in the habit of following has been to say to a patient, or to the medical men with whom I am in consultation, So long as this patient is moderately comfortable; so long as she can walk a mile, or for half an hour, without inconvenience; so long as she can get up and down stairs; so long as there is no great pressure upon any of the organs of the abdomen or pelvis, and she can breathe pretty well, and her heart is not interfered with,—such a patient as that may be left to ordinary palliative treatment, with the usual attention to the general health.'

*Difficulties and possible contra-indications.*—One source of difficulty arises from *adhesions*. The diagnosis of the presence of adhesions is sometimes quite impossible to make, but the presence of very extensive adhesions has not been found by any means an insuperable difficulty in the way of the performance and completion of the operation. When a portion of the tumour is in the pelvis, we may often ascertain whether adhesions are present or not, by pressing the tumour upwards from the vagina, and by the mobility or otherwise of the tumour thus found to exist. Mr. Wells suggests that the tumour should first be tapped, and pressure then made from below, in order to ascertain the presence or absence of this mobility. But it is to be remarked that the shape of the lower part of the tumour might prevent its being thus moved from below, adhesions being quite absent. A careful examination through the abdominal walls may show that there is mobility of the tumour; this indicates absence of adhesions. Again, as pointed out by Mr. Baker Brown, the skin can be grasped and separated from the tumour if adhesions be absent. These signs, however, for the most part affect the diagnosis of presence of adhesions *anteriorly*. The intestines are liable to contract very close adhesions with the tumour in long-standing cases, and these adhesions are posterior. Respecting existence of

<sup>1</sup> *Lectures Royal College of Surgeons, loc. cit.*

posterior adhesions, the results of examination are not conclusive. Practically, I am certain that the question as to the presence or absence of adhesions is one which must frequently remain unanswered until the operation is begun. Adhesions may be expected in cases where the patient has been repeatedly tapped. *Anasarca* of the lower extremities is justly regarded by Mr. Spencer Wells as not necessarily a bar to the operation, for, as he observes, it may depend solely on mechanical pressure of the tumour. I have myself seen very marked œdema of the lower extremities, from the presence of retroversion of the uterus, together with extreme distension of the bladder. When it is dependent on associated disease of the kidneys or other viscera, or on cancerous disease, œdema is undoubtedly a contra-indication. One of the worst cases of œdema of the lower extremities I have seen was a case in which on operation the tumour turned out to be cancerous. And the remarks of Mr. Wells in reference to *ascites* are equally to the point. If the ascites be an ascites mechanically produced, it is of less consequence. In the case of a small, *recent* ovarian tumour, where there is a good deal of ascites, the operation is contra-indicated, because there is a greater probability of the disease being of cancerous nature. It not unfrequently happens that there is much ascites and a very large tumour. In such cases, as a rule, the ascites is no obstacle whatever to the operation; in some respects it is an advantage, as adhesions are less likely to interfere.

The contra-indications which have been laid down by some operators, such as the health being very much broken down, where the drain of albuminous matter by repeated tapping has been great, the disease being of a colloid nature or otherwise materially departing from the true cystic character, where, from the habits of the patient, other organs have suffered, organically, to the serious detriment of their functions,—these restrictions are undoubtedly very much to the purpose if the success of the operation alone be considered, and they offer an important addition to the arguments in favour of ‘early’ operation. But, as before remarked, there is a class of cases in which the operation is justifiable as a *dernier ressort*. This is a point on which it seems hardly possible to lay down laws. Each case has a law of its own, which law it is the business of the practitioner to discover. Dr. Keith of Edinburgh has recorded a case in which he performed the operation when the cyst was actually in a state of gangrene, and with success, the patient being snatched literally from the jaws of death. Dr. Wiltshire with Dr. Watson operated on a patient



dying from hæmorrhage into an ovarian cyst under equally critical circumstances ; the patient survived ; and Dr. Keith more recently stated that he had operated fourteen times in cases of acute suppurating or putrid cysts, with twelve recoveries.

Cases where the tumour turns out to be cancerous are of course the most unfavourable of all, not so much as regards the immediate prospect of recovery from the operation as in respect to its ultimate effect, or rather want of effect, in saving life. The age of the patient, and other circumstances, such as the composition of the tumour, the presence of adhesions, etc., do not appear to materially influence the result, the patient having an almost equally good chance of recovery if the operation is capable of being completed.

The decision for or against ovariectomy should be left to the patient or her friends : it is for them to take the responsibility. It is our duty, firstly, to make a diagnosis as accurate as possible, taking the whole circumstances, past and present, into consideration ; secondly, to make to the best of our ability a prognosis of the case, and to lay before the patient and her friends the results arrived at.

Mr. Spencer Wells says, 'The probable result of ovariectomy can be estimated with far greater accuracy by a knowledge of the general condition of the patient than by the size and condition of the tumour ; and from a patient with a good sound constitution one can remove a very large tumour having very extensive adhesions, and she will probably recover ; whereas, among people who have been drunkards, or in whom the constitution has otherwise been impaired, or who have a feeble heart, unhealthy kidneys, or diseased liver, the operation is much more hazardous than in a healthy person. The size of an ovarian tumour alone has not appeared to me to affect the result very much ; the removal of some very large tumours has been followed by recovery, whereas death has followed the removal of much smaller ones. And a patient who is accustomed to the life of a sick-room bears an operation much better than a person taken from the ordinary pursuits of active life and at once subjected to an operation.'

'The size of an ovarian tumour alone, I say, does not very much affect the result ; but, if it be a very solid tumour, requiring a very large incision for its removal, the incision extending very nearly to the sternum, then the risk is very much greater. I have found, if a tumour could be removed by an incision not exceeding

five or six inches in length, the mortality is considerably less than when it necessarily extends to nine, ten, or eleven inches. Adhesions, if only to the abdominal wall, do not much affect the result; if they be low down in the pelvis, the mortality is considerably increased by them.'

'Almost the only positive contra-indication to an operation, I think, would be the fact that the patient has some other disease which, if it pursued its natural course, would certainly kill her.'

'With regard to the suspicion of cancer, and how far that should decide the surgeon not to remove an ovarian tumour, I think, if one were certain it was cancerous, one ought to be content with tapping, removing any peritoneal fluid that might be formed around it, and not attempting to remove it. The disease would almost certainly return. But still again I have seen some very extraordinary cases in which I have removed ovarian tumours which appeared at first sight to be ordinary multilocular tumours, and where a careful examination showed evident proofs of malignant growth, yet the patients for a long time remained in good health. In one case it was ten or eleven years before there was any return. So I think even the knowledge that a tumour was in all probability cancerous would not allow one to put operation aside altogether; but it necessarily obliges the surgeon to be very much on his guard.'<sup>1</sup>

#### THE OPERATION OF OVARIOTOMY.

Mr. Spencer Wells's instructions as to the operation are as follows :—

'The place, I need hardly say, should be as healthy a place as we can find. The patient should be lodged in the best house, in the best sanitary condition, and in the best room, that can be secured for her. The room must be so arranged that, after the operation, she can be kept perfectly quiet; it must be well ventilated, though she must be protected from any current of cold air, and at the same time not overheated.

'The bowels should be relieved, and any evident concentration of urine corrected by citrate of potash or some other simple saline. [To these precautionary hints of Mr. Wells it is proper to add that no solid food should be given on the day of the operation. It is of course essential that the operator, and all present at

<sup>1</sup> *Brit. Med. Journ.* June 1878.

the operation, be free from all suspicion of *post-mortem* taint. A nail-brush should be carefully used by the operator and assistants.]

‘The table on which the operation is performed should be arranged near a window, so that the light falls on the table diagonally. The patient is brought in and lies down on the table. Her feet and legs are carefully wrapped up ; and she is covered by a blanket, and a strap is fastened over her knees, so that she cannot throw her limbs about. It is well also to tie the hands ; and nothing is better for this purpose than an ordinary bandage, making a loop, passing it over the sleeve of the dressing-gown, and tying the hands down to the legs of the table. Each hand should be tied down. In the next place, one wants to protect the clothing. If she have simply a night-dress on, with a flannel about her shoulders, she and the bedding are completely protected by the use of a sheet of waterproof cloth with a hole in the centre, around which on the inside adhesive plaster is spread to the extent of an inch or an inch and a-half. That is thrown over the patient, and adheres to the skin of the abdomen, which, I should say, ought to have been previously well cleaned. The upper part of the sheet comes up nearly to the chin of the patient. Lately I have had it made larger ; and we have a simple contrivance by which the sheet can be held up in order to protect the patient’s face from the carbolic spray, supposing it to be used. The patient lying thus, with the gentleman giving chloroform at her head, she is completely protected by the india-rubber cloth from the spray, which is directed from the spray-producer, and plays upon the abdomen.’

Mr. Wells prefers the bichloride of methylene as an anæsthetic. Provided it is carefully given, by means of Junker’s apparatus, he has never seen the slightest cause for anxiety.

‘The nurses have sponges and water all ready—sponges of a certain size, thoroughly well cleansed and in sufficient number, neither too large nor too small. If they be too small they may be lost, and if they be too large they cannot be introduced. The assistants are ready. There are only two required : one stands opposite the operator to be prepared to assist him in tying any vessel, and more particularly in preventing the coming out of intestines after the escape of the cyst from the abdominal cavity. If the assistant be not careful, as the cyst is drawn out the intestines follow, and give a great deal of trouble ; but, if he carefully hold up the abdominal wall, keeping the edges of the wound together, it is impossible that any intestine can follow the cyst as



it escapes. He passes the middle finger inwards under the umbilicus, and the forefinger to the right and the thumb to the left of the wound, and holding the edges closely together as the tumour comes out of the abdomen.

‘Then, as to the instruments. First, an ordinary scalpel—working rather with the point of the instrument than with the shoulder. Next we have a number of what are called my torsion forceps, to hold any vessel in the abdominal wall. Supposing any vessel is bleeding, it is caught in a moment, and the forceps hang down holding the vessel, so that, when the peritoneal cavity is opened, no blood drops into it. I have them plated with nickel, so that they never rust. The bleeding vessels having been stopped, the next step is to divide the peritoneum, catching hold of it previously with the forceps or by one of these little hooks. The advantage of the hooks is that one is less likely to catch a bit of cyst with it. If the cyst be lying close to the abdominal wall when you are catching up the peritoneum with the intention of dividing it, you may catch the cyst also, and sometimes divide it as well as the peritoneum. That is avoided by using this hook. One or two flat touches of the scalpel on the peritoneum are sufficient to divide it. Then a broad director is passed into the opening, and, with a blunt-pointed knife, the peritoneum is very safely divided. I rather insist upon this blunt point, because, with a sharp-pointed instrument, supposing there is a bit of intestine adhering to the abdominal wall, it may be injured, or a sharp-pointed knife might enter the bladder if it were high up. Having laid bare the cyst by the incision of the peritoneum to the extent of three or four or five inches, it then becomes necessary to empty the cyst, and this is done by a trochar like that used for tapping, but of a larger size, and furnished with outer spring-hooks to fasten the cyst. It is passed into the cyst, then the point is withdrawn, and the fluid rushes through the canula into the pail below the table. As that is done, the outer hooks are opened, the cyst is caught hold of and easily fastened to the canula, and pulled out through the opening in the abdominal wall; the fluid passes out, the cyst is held by these grasping claws, and, if the cyst be free, it of course readily and easily follows the instrument. If adhesion be noticed as the cyst comes out, it may be separated.’<sup>1</sup>

The length of the incision first made is usually from the umbilicus to the pubes. In some cases this is found to be enough: the cyst can be emptied and drawn out, and no extension of the

<sup>1</sup> *Loc. cit.*

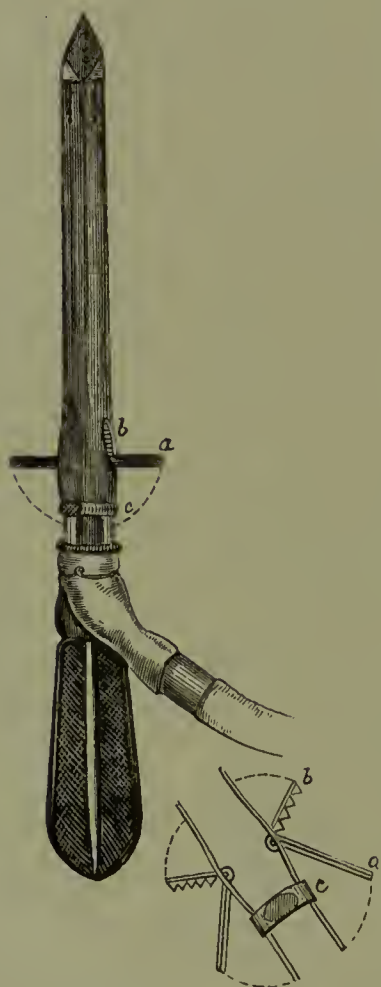
wound is required. But the incision has often to be lengthened above the umbilicus in order to allow of the moving of the tumour.

The next step is to ascertain that the continuance of the operation is possible. If the tumour is found to be solid, no further steps should be taken until, by means of the hand introduced above or by the side of the tumour, it has been ascertained that the tumour is actually removable. In some cases this may be dispensed with, the tumour being of cystic character, but even in these cases it is well to carry out this intra-abdominal exploration at this stage of the procedure. If adhesions be at once encountered, such adhesions must of course be separated in order to allow of this exploration.

The incision first made may be sufficient to allow of the extraction of the tumour without lessening the size of the mass, but generally this lessening is necessary; and the operator having ascertained that the completion of the operation is possible, and having broken down any adhesions met with in the manner to be presently described, a large trochar is thrust into the presenting cyst and its contents evacuated. A good apparatus to use for this purpose is the siphon-trochar invented by Mr. Spencer Wells. The tube is about the size of the finger. In a modification of it suggested by Dr. Murray (see fig. 200) the canula, after being plunged into the cyst, is firmly fixed to the cyst wall. It can be easily detached again from the cyst. The trochar is withdrawn through a slit in the india-rubber tube, which slit then closes and allows the fluid to pass away through it. Another excellent form of the instrument is provided with rather blunt claws, which can be readily made to seize the edges of the perforation in the cyst. The advantage of a large tube for rapid removal of the fluid is great; it is also important to prevent the fluid running into the peritoneal cavity. These objects are well secured by use of the above-mentioned instruments. If the cyst contents be semi-solid or very gelatinous, this instrument cannot be employed, but ordinarily it is very useful at this stage of the operation. It may be necessary to empty more than one cyst; in this case the second may generally be perforated from the aperture in the first. If the cysts are very small and numerous, it may be necessary to break them up by passing the hand into the centre of the tumour; but before doing so we should be absolutely certain that adhesions such as to prevent completion of the operation are not present. Having thus lessened the bulk of the tumour, it is drawn out at

the aperture and supported by the hands of assistants, care being taken that no dragging is allowed. It is evident that unless great care be exercised much mischief may be done at this moment. The tumour having been drawn out, the pedicle is to be secured. Before alluding to this part of the operation we must consider the question of adhesions. On exposing the tumour we may find that it is adherent; and it may be adherent to the bladder in front or laterally, to the intestines, or everywhere. The most difficult

FIG. 200.



adhesions to surmount are those between the tumour and the bladder, or the intestines or omentum, but adhesions in other situations are generally not real obstacles. These adhesions are not to be separated by the knife: they are to be carefully broken down by the fingers or by the handle of the scalpel. An 'adhesion clam' has been invented by Mr. John Clay for this particular purpose.<sup>1</sup> The actual cautery is exceedingly safe and useful in separating thick and strong adhesions. The bleeding from vessels in these adhesions requires to be carefully looked to. The torsion or pressure forceps used by Mr. Spencer Wells are most valuable instruments for dealing with hæmorrhage at all stages of the operation. They are made of various forms and sizes, so that, no matter where the bleeding point is, it can be seized and held by the spring action of the forceps without further attention being for the moment required. At a later

stage of the operation fine silk ligatures are employed where found to be required. Great care is necessary, when the intestines are adherent, to avoid perforating them: in very long-standing cases the difficulty of avoiding such perforation is or may be very great. When the cyst cannot be separated from the intestines, Mr. Spencer Wells advises that a piece of the cyst be cut off and left attached, the lining membrane of the cyst being also removed.

<sup>1</sup> See *Med. Times and Gaz.* vol. ii. 1862.



When the tumour is quite clear of all adhesions, and the necessary diminution of its bulk effected, the pedicle is to be secured. In order to perform this part of the operation satisfactorily, the tumour must be properly sustained by assistants. In most cases it is better to apply a temporary ligature and cut away the bulk of the tumour, in order that the pedicle may be more conveniently dealt with.

*Treatment of the pedicle.*—During the last three or four years the method of securing the pedicle which has been most largely employed is one used some time ago, by Dr. Tyler Smith, of tying it with silk ligatures, two or more, according to circumstances, cutting these off short and leaving the stump to take care of itself; and it appears probable that this method will come to be almost universally employed.

*The clamp.*—Mr. Jonathan Hutchinson introduced the use of a clamp (see fig. 201), by which the pedicle is constricted, brought out to the level of the abdominal wound, and there maintained in a fixed position, the wound being then closed around the stump of the pedicle. The double object of preventing hæmorrhage and keeping the stump of the pedicle at the surface of the wound is thus secured.

Mr. Spencer Wells's clamp is composed of two slightly curved blades meeting somewhat like scissors, and acting in such a way that the pedicle, if broad, is compressed into a rounded shape and its bulk thus reduced. This clamp and another one which had been previously largely used, and of which it is a modification, is provided with long handles enabling the operator to use great compressing force. The handles are capable of removal when the pedicle has been secured.

Mr. Wells for some years used the clamp almost exclusively, but now employs silk ligature.

*Application of the actual cautery.*—To Mr. John Clay of Birmingham is due the merit of first applying the actual cautery in cases of ovariectomy, but he used it for the purpose of destroying adhesions only. Mr. Baker Brown first employed it for cutting and closing the pedicle. In this procedure the pedicle is enclosed between the two blades of a clamp of peculiar shape; these are then screwed very tightly together, and a wedge-shaped cautery-iron at a moderate red heat applied so as to cut through the pedicle. The parts are cut through slowly and deliberately, the clamp is then unscrewed, and the stump allowed to drop into the pelvis. In some cases the vessels are not completely closed,

and after taking off the clamp it is found that there is some escape, necessitating the application of ligatures. The cautery-clamp has a twofold action; it compresses and crushes the pedicle for a thickness of a quarter or a third of an inch, and it sears the surface. And it must be employed in such a manner that these objects are well attained.

The cautery has been extensively employed of late years, Dr. Keith having performed many very successful operations with its aid.

Of other methods of securing the pedicle the old method of tying it and bringing the ligature ends outside has been entirely given up. The method of fixing the pedicle by stitches to the

FIG. 201.



edge of the wound is now only adopted in cases of incomplete operations, where, for instance, a cyst has been emptied but cannot be removed.

*The silk ligature and pedicle dropped.*—Dr. Tyler Smith was, I believe, the first to employ the method of applying a ligature and dropping the pedicle, but other operators did not at that time follow up this procedure. Recently, however, as already stated, the silk ligature has been extensively employed. Speaking on the subject,<sup>1</sup> Mr. K. Thornton states that after this operation he has observed five conditions—(1) Union of opposite sides of the ligature; (2) vascularisation of lymph over the ligature; (3) adhesion of stump to adjacent parts; (4) fatal hæmorrhage due to escape of one or more of the large veins at the outer edge of the pedicle from the external loop of the ligature; (5) the ligature uncovered round the pedicle when diffuse peritonitis and effusion of serum had occurred.

The material employed is generally pure Chinese silk, sufficiently thick to admit of being tied firmly, but not too thick, and properly carbolised. When the pedicle is not large, two

<sup>1</sup> *Brit. Med. Journ.* Jan. 1878.

ligatures are sufficient, and for this purpose a needle, which Mr. Wells prefers to be blunt pointed, is passed through the stump, armed with a double ligature. Each half is then tied separately, and the whole stump then surrounded by a third ligature. When the pedicle is thick or wide it requires to be tied in more than two detachments. The ligatures should be made to lock in each other. A further precaution is necessary, viz. that too much should not be enclosed in any one ligature, otherwise it is liable to slip through afterwards; this latter accident is more particularly liable to happen at the outer border of the stump. Dr. Bantock suggests that a small outer ligature should be applied at the edge of the pedicle so as to get a groove for more certain fixing of the outer ligature.

It is desirable to exercise great care in the adjustment of the ligatures on the stump, to be quite sure that each ligature does its work, and that it has not too much to do. This must be ascertained after the stump is dropped, and it must be certain that no escape of blood occurs. The ends of the silk ligatures are finally cut off.

The dropping of the pedicle appears to answer extremely well, and as the abdominal wound is completely closed afterwards there is less risk of septic action than when the clamp is used. The cautery plan has the same later advantage also, but it is less certain than the ligature in regard to its preventing hæmorrhage afterwards.

*Drainage in ovariectomy.*—A few years ago much attention was paid to the subject of drainage, and cases were published by Dr. Marion Sims and others in which it had been found serviceable to remove septic products formed in the peritoneal cavity after ovariectomy by drainage. Dr. Marion Sims has all along insisted on the extreme importance of complete and continued evacuation of septic material from the peritoneal cavity after ovariectomy. Drainage was performed in two ways, by the vagina or by the abdominal opening. The drainage by the abdominal opening, as carried out by Dr. Keith of Edinburgh, consisted in introducing glass tubes perforated at the extremity and opening between the lips of the abdominal wound.

Dr. Bantock and Mr. Thornton have also practised drainage after the method of Keith. But since the introduction of the antiseptic method of operating, the drainage plan seems to have been almost entirely relinquished. It has not been found necessary, either because the ligatured and dropped pedicle is less likely



to occasion septic irritation or because of the influence of the antiseptic spray. And it is disputed as to which is the real cause of the diminution in the septic disturbance which has followed more recent operations.

*The antiseptic method of performing ovariectomy.*—The ‘Listerian’ precautions for performing operations have been applied to ovariectomy during the last four or five years by some of the most celebrated operators—Mr. Spencer Wells, Dr. Thomas Keith, Mr. Thornton, and others in this country. It has also been largely employed on the Continent, particularly by Nussbaum of Munich.

Dr. Keith, writing in 1878,<sup>1</sup> said that since 1876 he had performed all his operations under the ‘spray.’ His last 41 cases (under spray) had all been successful. The advantages were—(1) That the mortality was lessened; (2) that early operations could be more safely recommended; (3) drainage less required; (4) convalescence easier; (5) antiseptics a great comfort to the operator. Writing more recently on the subject, however, Dr. Keith appears to have altered his views in a material degree. Mr. Spencer Wells, in his paper recording results of 1,000 operations<sup>2</sup> up to June 1880, says that before 1878 he had taken all other possible precautions, but in that year he adopted the antiseptic plan. Previously, in no series of 100 cases had mortality fallen below 17 per cent., but in the last series of 100, all done antiseptically, the mortality fell to 11 per cent. His total number of antiseptic cases up to that time was 134 with 13 deaths, or a mortality of 9·7 per cent. He says, further, that soon after adopting the antiseptic precautions he began to adopt the intra-peritoneal method of treating the pedicle; but he says, further, that before he had made this latter change he had noticed that the antiseptic plan made a great difference in his mortality. With it he finds drainage scarcely ever necessary.

Mr. Knowsley Thornton<sup>3</sup> is a strong advocate of Listerian ovariectomy. He considers that he has reduced his mortality by 9·35 per cent. On the other hand Mr. Lawson Tait and Dr. Bantock express themselves as not satisfied with the good effects of the ‘spray’ in this operation. Mr. Tait<sup>4</sup> considers that the introduction of the intra-peritoneal method is to be credited with the lowered mortality of ovariectomy, though he is not prepared to say that the antiseptic system is absolutely without results. Dr.

<sup>1</sup> *Brit. Med. Journ.* Oct. 1878.

<sup>2</sup> *Med.-Chir. Trans.* vol. lxiv.

<sup>3</sup> *Ibid.* vol. lxiv. p. 139.

<sup>4</sup> *Ibid.* vol. lxii. p. 161.

Bantock<sup>1</sup> contends that the carbolic spray as ordinarily used is responsible for high temperature afterwards. He has gradually reduced the strength of the spray to 1 in 150, and even lower, and finds still good results. He considers also that it acts as a poison in some cases.<sup>2</sup>

The employment of the carbolic spray throughout a long operation, such as ovariectomy occasionally is necessarily found to be, appears undoubtedly liable to prove detrimental. But, supposing this to be the case, the carbolic spray may still make shorter operations more safe. Further, the use of carbolic spray is only one of the antiseptic precautions which the Listerian system includes: the carbolisation of instruments, sponges, and apparatus generally, must add very much to the safety of the operation, even supposing the carbolic spray not to be employed.

When the tumour is removed and the pedicle secured, the next procedure is to thoroughly cleanse the peritoneum by carefully sponging it and removing any blood or fluid which are found. In some cases this is not necessary when the tumour has been removed without laceration or escape of blood or fluid into the peritoneum. Any bleeding points have to be secured by ligatures; any torn adhesions giving rise to escape of blood must be looked to. This 'toilet' of the peritoneum, as it has been aptly termed, is most important. Sponges employed in this final cleansing process should be clean ones.

The sutures for the purpose of securing the edges of the wound are next introduced. They are usually of strong silk. They are introduced from within, just securing the edge of the cut peritoneum and securing coaptation of the two peritoneal edges. It is a good plan to place a large flat sponge under the wound, while the needles carrying the sutures are put in. Each suture should have two needles. When the whole are inserted the sponge is removed and the sutures tied. Before fastening the wound Mr. Wells is particular to insist on the sponges being carefully counted to see that none are left behind. When pressure forceps are employed, these also should be counted.

Before closing the wound it is necessary to examine the other ovary and to ascertain whether it be sound. If there be a decided cystic tumour of the other ovary, and of such a character as to render it probable that it would, if left, grow and necessitate a further operation, it should be removed; but it may be

<sup>1</sup> *Med.-Chir. Trans.* vol. xlv. p. 103.

<sup>2</sup> See discussion on this subject, *Lancet*, Dec. 18, 1880.

questioned whether it is advisable to meddle with it under any other circumstances. It must not be forgotten that the *normal* Graafian follicle when near the time for bursting is of considerable size. The removal of the second ovary would be effected in precisely the same manner as the first, but more easily and expeditiously.

When the sutures are secured the skin must be cleansed and dried, and a piece of cotton wool laid over the sutures. Adhesive plaster is then applied over all, so as to help to sustain the edges of the wound in apposition. Finally a roller with more cotton wool may be applied, the patient thoroughly dried and placed in bed with hot-water bottles to the feet.

The *after treatment* is a matter of the greatest consequence, for it matters little how well the operation may have been performed if there is allowed the slightest defection in the care administered subsequently. A very little neglect will nullify the most promising hopes.

The patient must be sedulously watched by a specially trustworthy and competent nurse; she must not be allowed to move. The room must be kept moderately warm, and at an *even* temperature, but well ventilated. The catheter must be employed twice or thrice in the twenty-four hours.

When the intra-peritoneal plan of securing the pedicle is adopted, the wound requires no attention for two days or more. It is sufficient to see that there is no escape or formation of matter. The spray may be used in dealing with the wound afterwards. It should be carefully treated with antiseptic precautions in dressing, if there be any delay in the healing of the wound. Dry cotton-wool is an admirable means of preventing contact with air and is highly antiseptic. The sutures may be left for five or six days as a rule. On their removal strapping should be carefully applied.

As regards food, it is best to avoid giving food by the mouth at first, to give only a little ice to suck occasionally, but to give nutrient injections every six hours, commencing to feed the patient in the ordinary way, at first by milk or beef tea. After the second or third day, according to circumstances, small quantities of stimulants may be given if the pulse is weak and quick. Twenty drops of laudanum should be added to the injection night and morning for the first three days.

The bowels should be unloaded by a simple enema of warm water on the fifth day.



It not unfrequently happens that the state of the patient just after the operation is one of great exhaustion; or shortly afterwards vomiting, very difficult to control, may set in. As regards the exhaustion, it is to be overcome by giving a sufficient quantity of brandy and water or brandy and beef-tea by the rectum, which, if it appear necessary, may be repeated at frequent intervals subsequently. Ice by the mouth is best for the sickness. Repeated deep inspirations help to get rid of the chloroform or other anæsthetic, and thus tend to allay the vomiting immediately following the operation.

Death after ovariectomy results mainly from shock, from hæmorrhage, or from septicæmia. A weak heart, diseased lungs, or other general ailment, may be the main fundamental cause.

We have to avert the tendency to death, whatever that may be. For *shock*, restoratives—ammonia, brandy, champagne, opium, may, one or all of them, be employed. For *hæmorrhage*, which may occur internally and will be recognised by the feebleness and frequency of the pulse, together with a progressive faintness, the only efficient remedy is of course to arrest it. It may be necessary to reopen the wound and secure the bleeding vessel if there be good reason for suspecting that bleeding is going on. A troublesome form of hæmorrhage is that which arises from a large surface of torn adhesions. Application of perchloride of iron appears to be the best remedy in some of such cases. A limited bleeding area would be best treated by the actual cautery.

For *septicæmia*, which may be used as a general term for peritonitis, for tendency to puriform formations, for tympanitis, and other grave symptoms, we must be constantly on the watch from the first moment. In one or other of its forms it is the most frequent form in which death occurs. The patient is in danger the moment the pulse rises to 120, together with elevation of temperature to 101° or over that, though the degree of danger varies according to other circumstances. The condition of the pulse and temperature taken together offer more trustworthy indications as to the patient's state.

The elevation of temperature is now always most carefully watched and cared for. In several cases where the temperature was very high it has been reduced by the application of the ice cap to the head, and three or four years ago great attention was paid to this procedure, and a special apparatus devised consisting of a spiral tube in the shape of a cap, through which iced water was made to flow continuously (Thornton). Another method

adopted was to cover the patient with a sheet wetted with iced water. It appears, however, that of late there has been less necessity for the ice cap, owing to the greater success in preventing septicæmia.

Warmth to the abdomen, poultices, turpentine stupes, etc., are requisite when any local pain or irritation is present. When, however, there is decided elevation of temperature, it is so frequently found that it is due to a septic process in the peritoneal cavity that search is made, by vaginal examination or otherwise, for evidence of existence of puriform swellings or collections, and several lives have been saved by opening or allowing the escape of the contents of such collections.

Careful administration of diffusible stimulants, ether, champagne, together with injections of natural character, are required when strength is failing from septicæmia or otherwise.

Tympanitis—generally coexistent with peritonitis—is a troublesome complication. A long O'Byrne's rectal tube is useful under these circumstances. A case is recorded where the best effects resulted from inverting the patient to relieve great tympanitis.

Diarrhœa is dangerous: it must be checked by using first a warm-water injection to empty the rectum, and then giving by injection laudanum, in small frequent doses, along with the brandy and water probably also required.

Life frequently hangs on a thread in the few days following ovariectomy, but experience has shown that very apparently hopeless cases recover by careful nursing, assiduous feeding as above directed, and unhesitating administration of champagne or other stimulants in very frequent small doses.

For some days the patient must lie absolutely on the back. Bed-sores must be prevented by use of water cushions; the greatest cleanliness, but especially dryness, of the linen and surface of the body enforced.

*Exploratory operations.*—Of late years the operations of opening the abdomen in order to ascertain whether it is possible to perform a further operation has come to be recognised as a proper procedure in certain cases. It is remarkable that so little harm seems to be done by this operation when accompanied by antiseptic precautions.

*Ovariectomy during pregnancy.*—The operation has of late years been performed when pregnancy was present in some few cases. Mr. Spencer Wells in 1877<sup>1</sup> reported nine cases with

<sup>1</sup> *Obst. Soc. of London*, July 1877.

eight recoveries, and in five the child was born at natural term. There were three operations in the third month, three in the fourth month, one in the sixth month, and two in the seventh month. As bearing on his subject Dr. Playfair stated that he had collected thirteen cases of results of ovarian disease and pregnancy, and of the thirteen as many as seven were fatal at the end of pregnancy. Dr. Galabin<sup>1</sup> reports a case of ovariectomy in the sixth month, with favourable result and delivery at full time. He says that in most, if not in all, cases reported of operation after the fourth or fifth month premature labour followed sooner or later. Mr. Wells apparently prefers to operate early rather than late in pregnancy. It does not seem possible to lay down an exact law as to operating during pregnancy. But it is manifest that if the patient be in a suffering condition ovariectomy is called for, even though at the risk of inducing premature labour later on. The probability is that the decision will be more and more in favour of operating.

*Palliative treatment of ovarian tumours.*—Past experience does not give encouragement for the belief that much benefit is derived in cases of *ovarian dropsy* from any particular remedies. Iodine, bromine, and their compounds, are agents which have been most often exhibited of late years. Iodine has been applied externally also. It has not been shown that any great amount of benefit has been derived from their use, but in the early stage of the affection it would be desirable to give them a trial. It is extremely doubtful whether we have any one drug from which much can be expected; but it does seem reasonable to suppose, and it is in accordance with experience, that by attending to the general health of the patient, enforcing observance of rules as regards diet, exercise, and regimen generally, a favourable influence may be exerted, and possibly the onward progress of the case stayed; the more so if we found, on inquiry, that the general health had been, for some time previous to the appearance of the disease, in a defective state. Whether operative measures be adopted ultimately or not, we should in the meanwhile inquire minutely into the particulars of the life of the patient, her habits, food, etc. Such remedies should be administered as will assist in restoring the impaired health. Iron, quinine, or other suitable tonics, will frequently be required. The condition of the bowels must be regulated, and mild laxatives administered if necessary; injections are often required in cases where there is a pelvic ovarian tumour present, the tumour sometimes pressing on the

<sup>1</sup> *Brit. Med. Journ.* March 13, 1880.



rectum and preventing defæcation. In cases where the disease is far advanced, where operative measures are, from whatever cause, inadmissible, the palliative treatment must be adapted to the circumstances of the case. The great difficulty is generally to carry on the digestive process, there being often great irritability of the stomach and inability to take food. The food administered must be of the most nutritious and easily digestible kind.

## CHAPTER L.

## DISEASES OF THE PERINÆUM AND VULVA.

EXAMINATION OF THE EXTERNAL GENERATIVE ORGANS.—Diagnosis of Ulcerations of the Vulva of Various Kinds—Adhesions of Labia; Treatment—Elephantiasis of Vulva—Hypertrophy of Labia and Nymphæ—Anasarca of Labia or Nymphæ—Hypertrophy of the Clitoris—Condylomata, Warty Excrescences of the Vulva; Removal—Lupus of the Vulva—Cancer of External Generative Organs; Treatment—Abscess of Labia and Boils—Blood-Tumour of the Vulva—Fibrous, Fatty, and Encysted Tumours of the Vulva; Treatment—Hernia of the Labia and Ovary—Various Forms of Inflammation of the Vulva; Treatment—Vulvitis in Children—Pruritus of the Vulva—Treatment.

*Method of examination.*—For ordinary purposes the position on the side answers very well; in others, the position on the back is best.

## DIAGNOSIS OF ULCERATIONS OF THE EXTERNAL GENITALS.

In reference to the diagnosis between ulcerations of syphilitic, cancerous, lupoid, or other nature, it may be remarked, *in limine*, that it is safer in doubtful cases to depend rather on the deductions to be drawn from attentive consideration of the history and general symptoms of the patient, than on the appearances presented by the ulcerated surface itself, these appearances, *per se*, being likely to lead to the formation of erroneous conclusions.

Ulcerations due to *syphilis* are distinguished from those due to *lupus* by the following characters. In the case of syphilis, although the ulcers may be like those of lupus superficially, there is an absence of induration of the cellular tissue beneath. The coppery hue of syphilis is wanting in lupus. The history and course of the two affections, the absence of syphilitic affections in other parts of the body, in cases where the disease of the vulva has lasted for some time at least, would be against syphilis. Syphilitic ulcers have a predilection for the internal or mucous surface of the vulva, and especially the labia minora. In the case of lupus of more severe form, where there is considerable destruction of the tissues of the part, there might be a possibility of confounding it with the

phagedænic form of syphilis. Here the distinction would rest on the rapid course of the syphilitic, the chronic course of the lupoid, disease; added to which the previous history of the case would throw much light on the subject.

Ulcerations due to *cancerous* disease of the vulva have the characters ordinarily possessed by cancerous ulcers elsewhere. The hard, jagged, everted borders, the considerable hardening of the tissue beneath, greater than in the case of lupus, the occasional bleeding, lancinating pain, and progressive character of the disease—these are the chief distinctive features. There is less disturbance constitutionally in the case of cancer of the vulva than in cancer of other parts, inasmuch as cancer of the vulva is usually of the epithelial variety. Syphilitic ulceration, as a rule, could hardly be confounded with cancerous; the course of the affections is essentially different; the cancerous disease is limited to one spot, and there is, as in the case of lupus, absence of syphilitic disease in other parts of the body. The diagnosis of syphilitic ulcer is not always so easy. Dr. West has observed some cases of chronic ulceration of the mucous surface of the vulva, which he believes to have been forms of tertiary syphilis, but which proved so difficult to cure as to raise the question as to their malignant nature.<sup>1</sup> The ulcers in question were on the mucous surface of the vulva, for which they exhibited a preference. In lupus, there is more induration around and in the base of the ulcer, and the orifice is often contracted; whereas, in Dr. West's cases of supposed syphilitic origin these characters were wanting.

Simple ulcerations are usually distinguished from syphilitic ones by the absence of inflammation around the ulcers in the syphilitic cases.

Twice I have observed a patch of ulceration, the size of a shilling, on the surface of the labia, in a young woman the subject of scrofula. This form of ulceration might be termed *scrofulous ulcer of the labium*. The edges were pretty well defined, there was little inflammation around, and not much pain. On both occasions the ulcer appeared simultaneously with great constitutional disturbance, and disappeared when, after removal to the country, the patient had become in other respects better.

<sup>1</sup> *On Diseases of Women*, p. 651.



## ADHESION OF THE LABIA MAJORA.

The labia majora are sometimes found adherent in the middle line, there being only a small opening above—the urethral orifice. Cases of this kind are chiefly met with in infants or young children.

Such adhesion is sometimes met with, but in a partial degree only, after adult age has been reached. The closure here alluded to is very different from that situated higher up within the vagina, where the hymen is in question; in the latter case, the obstructive membrane is not visible until the labia have been separated. Here the labial obstruction is quite on the surface, the perineal raphé extending forwards much further than usual, and all that is seen of the vagina is a little recess just beneath the urethral aperture.

The *treatment* required is as follows: The ivory handle of a scalpel is dipped in oil, the extremity of the handle inserted just below the urethral orifice, and the separation effected by pressing the edge of the handle outwards against the obstruction, which usually readily gives way. A piece of oiled lint may be introduced between the separated labia, and there left for a day or two. This operation should be performed during the first year of life. Incision may possibly be necessary in those rare instances in which the agglutination persists until after puberty.

## ELEPHANTIASIS OF THE VULVA

is a peculiar hypertrophy of the skin of the part. The disease is very rare; the size of the tumour thus formed may be very considerable, as in the case depicted in the French edition of Scanzoni's work on 'Diseases of Women,' where the labia, enormously increased in size, extended down as far as the knees. The disease is said to be epidemic in Barbadoes. It is not often witnessed in temperate zones. (Scanzoni.)

## HYPERTROPHY OF THE LABIA AND NYMPHÆ

is not so rarely witnessed. The increase in size is generally due, when the labia majora are affected, to the presence of large quantities of fat. Whether due to fat or to fibro-cellular tissue, the enlargement is smooth and uniform, thus differing from elephantiasis and from other forms of enlargement of the labia. The

hypertrophy may affect the labia majora or the labia minora exclusively. A remarkable case of hypertrophy of the nymphæ has been described by Breslau, in which the presence of the tumour and the dragging of the enlarged organs on the lips of the urethral orifice produced incontinence of urine.

In a few cases when the bulk of the organ interferes with locomotion, or gives rise to other discomforts, the hypertrophied parts have to be excised.

#### ANASARCA OF THE LABIA MAJORA OR NYMPHÆ.

In these cases there is an effusion of fluid into the cellular tissue of the labia majora, or nymphæ, or both, and it usually affects both sides; the distension is uniform, not painful; it is consequent on obstruction to the abdominal circulation, as in the course of pregnancy, general organic disease of the heart, liver, kidneys, etc.

The distinguishing characteristics of the swelling due to this cause are that the swelling is uniform, smooth, pitting on pressure, and painless, at all events at first. Subsequently there is often much pain, due to excoriation of the surface.

The *treatment* consists in observance of rest in the horizontal position, and emollient applications, such as poppy fomentations, or an evaporating lotion, composed of a mixture of spirit and water. Such applications afford great relief, and are usually sufficient. When the swelling is extreme, troublesome excoriations, produced by the opposed surfaces rubbing one against the other, may be witnessed. In such cases, lint dipped in the lotion must be applied between the parts affected, so as to prevent friction.

#### HYPERTROPHY OF THE CLITORIS

is now and then met with as a consequence of eczema of the skin in the neighbourhood, or of a chronic inflammatory condition of the surrounding parts, or of syphilis, or without evident cause. It is occasionally congenital. The clitoris is also liable to become the seat of cancerous growth.

Cases are on record in which the clitoris has attained an enormous size, so much so as to render walking and moving about inconvenient. The identity of the tumour with the clitoris will be ascertained by carefully examining its attachment superiorly.<sup>1</sup>

<sup>1</sup> Several cases of enlargement of the clitoris will be found described in Dr. Churchill's valuable treatise on *Diseases of Women*.

In cases of self-abuse the clitoris may become, but not necessarily so, hardened and hypertrophied.

*Treatment.*—When the clitoris is hypertrophied, its removal may be necessary, on account of the mechanical inconveniences the presence of a large tumour in this situation produces. The removal of the clitoris for the purpose of curing self-abuse has not proved satisfactory in cases where it has been practised.

#### CONDYLOMATA, WARTY EXCRESCENCES, ETC.

Various forms of excrescences of the external generative organs are noticed. *Condylomata* are warty growths, often of considerable size—flat, smooth elevations, growing irregularly round the orifice of the vulva, and occasionally in such profusion as to almost block up the entrance. They are observed in cases of syphilis of the female generative organs. There is generally in such cases a profuse offensive discharge; and, on inquiry, the syphilitic source of the growths in question is made evident. Warts of non-syphilitic character, and resembling those seen in other parts of the body, may be found growing on some part of the vulvar surface. The diagnosis of the syphilitic from the non-syphilitic cases is not usually a matter of any difficulty. The further consideration of this subject falls scarcely within the province of this work.

*Treatment.*—Where the condylomata are large and numerous, the preferable treatment is to use the knife for their removal, the patient being previously placed under the influence of an anæsthetic. Strong nitric acid or lunar caustic may be used in other cases. The black wash, or a strong solution of iodide of potassium, should be subsequently applied freely; anti-syphilitic remedies are to be given internally. The smaller warts may be dealt with by scissors.

#### LUPUS OF THE VULVA.

The chief characteristics of this disease—not a very common one—are, thinning of the skin, hypertrophy and knotty condition of the cellular tissue beneath, formation of indurations and enlargements, ulcerations and contractions. The disease is chronic, and is not usually painful. The ulcers form slowly, and the surface heals in one place while it is ulcerating in another. The contractions left on healing of the ulcers are very considerable. The disease differs from cancer, but exhibits a very close resem-



blance to lupus of the face. It may prove fatal by exhaustion, or by peritonitis consequent on formation of fistulæ. The disease was first accurately described by Huguier, who divides the cases of this disease into three categories—the superficial, the perforating, and the hypertrophic forms.<sup>1</sup> Dr. West, whose description of lupus is most complete, has himself observed five cases.<sup>2</sup>

The disease was observed in only one of these cases before the age of twenty; it was observed most frequently between the ages of twenty and thirty-five. Its duration may be gathered from Dr. West's statement, that in the fourteen cases observed by Huguier and himself, some cases admitted of a cure after more than three years, and of great relief even after eight years. One case had lasted between ten and eleven years. The disease kills, when fatal, by producing peritonitis, fistulæ, contraction of the bowel, and not, as cancer does, by attacking some distant organ, or by involving all the tissues in one common morbid change. (West.) Two cases of this rare affection are recorded and delineated in Dr. M'Clin-tock's work.

*Treatment.*—It appears that complete recovery from lupus of the vulva is rare, though the disease is susceptible of much alleviation by treatment. Long courses of small doses of mercury and iodide of potassium would seem, from Dr. West's experience, to be most efficacious. Scanzoni recommends the local and internal use of iodine. Huguier and West both insist on the extreme advisability of removing the nymphæ or any of the adjacent parts readily admitting of extirpation, when the ulcerations upon them appear indisposed to heal. Dr. West also urges the removal of the excrescence apt to form in such cases as preparatory to other measures; and he considers the actual cautery preferable to any kind of chemical escharotic, as a means of healing the ulcerations produced by the disease. Professor E. Martin<sup>3</sup> of Berlin records a case in which he applied fuming nitric acid to the affected parts, the patient being under the influence of chloroform, and subsequently a milder caustic, in the shape of nitrate of silver. The case, that of a patient æt. 25, terminated satisfactorily. The destruction of the surface affected by means of potassa fusa, as successfully practised by Professor Humphry in cases of lupus of the face, would appear to be a means of treatment likely to be applicable in cases of this disease.

<sup>1</sup> Huguier's important memoir will be found in the *Mémoires de l'Acad. de Méd.* 1849.

<sup>2</sup> *Op. cit.* p. 653.

<sup>3</sup> *Mon. f. Geb.* Nov. 1861, p. 348.

## CANCER OF THE EXTERNAL GENERATIVE ORGANS

usually occurs in the form of epithelial cancer, scirrhus and the medullary form of the disease being much more rare. Any part of the external generative organs may be the starting-point of the affection—the clitoris, the labia, are more commonly first affected. In its first stage, epithelial cancer exhibits itself as a ‘little hard tubercle on the outer surface, but near the edge, of the labium.’ (West.) The tubercle in question is not usually painful, but gives rise to itching and smarting. The diagnosis of the indurations due to commencing cancer of the labia is often a little obscure at first. In a case which fell under my notice, the occasional presence of a peculiar sharp pain darting across the groin led me to suspect cancer; the result proved this suspicion to be well founded. After some months’ duration the surface becomes ulcerated, and the ulceration then spreads. The edges of cancerous ulcers are indurated, and this induration is perhaps the most distinctive feature of the ulcer; there is occasionally a bloody discharge; subsequently the inguinal glands swell, and the patient’s constitution becomes affected in the characteristic manner. The disease may begin in the groin, as in a case of Dr. M’Clintock’s, and travel to the generative organs.

Mr. Jonathan Hutchinson has collected the particulars of fourteen cases of epithelial cancer of the female genitals.<sup>1</sup> The labium was the part affected, the disease affecting the clitoris and nymphæ also in one or two of the cases. The longest time the disease had existed was five years. The disease is stated to have returned after operation in three of the cases. Operation is said to have been finally followed by recovery in the other cases, save one, where the result is not given.

*Treatment.*—When, as is ordinarily the case, the disease belongs to the epithelial variety, early excision should be practised, the position and relations of the tumour being such as to render the removal practicable. When the disease has so far advanced that deep ulcerations are present, such operations are not admissible. Applications, such as bromine in solution, are then more suitable.

## ABSCESS OF THE LABIA ; BOILS.

Abscess of the vulva is characterised by the presence of a rounded circumscribed swelling, of variable size, on one side only,

<sup>1</sup> *Med. Times and Gaz.* Oct. 1860, p. 379.

usually on the inner aspect of the labium, and which is painful and very tender to the touch. It may be produced by blows or injury of any kind, by excess in coitus, by scratching, as in cases of pruritus, by masturbation, etc. The most frequent *seat* of the affection is the gland situated on either side, known as the vulvo-vaginal or Duvernoy's gland. This gland becomes inflamed, or the orifice of the duct of the gland becomes obstructed, and the abscess is thus produced. Most cases of circumscribed abscess of the labia originate in the gland in question. Abscess of the vulva of a more diffuse form may be observed as the result of puerperal affections, or it may occur in connection with œdema during pregnancy, or under other circumstances.

*Boils* are liable to form in the labia as well as other parts of the body. They occasion much irritation, and inconveniences of various kinds. When one boil is in process of healing, another often forms, and the affection may thus last a considerable time.

*Treatment.*—The ordinary circumscribed abscess of the labium which arises out of inflammation, or obstruction of the duct of the gland here situated, is best treated by early incision. After the opening has been made into it (which should never be done until the question of the swelling being possibly due to a hernia has been considered and dismissed), warm poultices should be applied, and perfect rest enjoined; opiates are necessary to relieve the pain.

Boils are often tiresome and troublesome to manage. Great cleanliness is essential, and generally tonic medicines are requisite. The solid nitrate of silver has been found a good application.

#### BLOOD-TUMOUR OF THE VULVA.

This is not by any means a common affection. The tumour, composed of blood effused into the tissue of the part, and doubtless derived from the vessels of the erectile structure described as the bulb of the vestibule by Kobelt, is generally confined to one side. The tumour may be of considerable size; it is painless, unless when the effusion is considerable and the surface inflamed. Women are most liable to this 'thrombus' of the vulva, as it is termed, during pregnancy, and the swelling has been sometimes so great as to impede delivery. After parturition, also, effusions are frequently found to have taken place into the cellular tissue in this situation. It sometimes happens that the tumour or the



enlarged veins near it burst externally, and serious hæmorrhage results.

Dr. M'Clintock<sup>1</sup> describes the affection under the term 'Pudendal hæmatoccle.' This author, who has placed on record some most interesting cases of this affection, believes that a varicose state of the vessels of the vagina or vulva is not, as usually supposed, a precursor of the rupture which permits the effusion of blood: for out of 38 cases, tabulated for him by Dr. Halahan, there were only 2 in which such varicose condition of the veins was noted as being present. The affection was observed in primiparæ in 13 out of 25 cases where the number of the pregnancy was noted. Dr. M'Clintock has never observed a case of thrombus of the vulva in the non-gravid state, except as a result of direct violence; and even during pregnancy its spontaneous occurrence is very rare, the more usual cause of the affection being a traumatic one. Mauriceau mentions a case in which a blood tumour in the left labium had existed for twenty-five years, and which, on being opened, gave issue to a matter like the contents of an aneurismal sac.<sup>2</sup> This was, however, a very exceptional case; ordinarily, the thrombus of the vulva is a recent affection, of rather sudden formation, and in the majority of cases it is an accident attendant on labour.

*Treatment.*—These tumours are best treated by rest, and the continued use of an evaporating lotion. They are not to be meddled with surgically, unless the coagulum—which is rare—undergoes liquefaction, and a sort of abscess results; in which case puncture may be required.

The hæmorrhage which is liable to occur from bursting of these tumours is to be treated by very careful and continuous application of pressure combined with cold: it has occasionally proved fatal.

#### FIBROUS TUMOURS OF THE VULVA; FATTY AND FIBRO-CELLULAR GROWTHS; ENCYSTED TUMOURS.

*Fibrous growths* are not very frequently met with in the external genitals. They are characterised by slow formation, are painless and circumscribed; they may become pendulous, attached by a long pedicle. There is a peculiar form of fibrous tumour—the *recurrent*—of which an interesting instance is recorded by

<sup>1</sup> *Clinical Memoirs on Diseases of Women.* Dublin, 1863.

<sup>2</sup> *Mal. des Femmes*, tom. ii. p. 29.

G. Simon.<sup>1</sup> In this case, after repeated removals, the disease always returned, and finally proved fatal. To the ordinary forms of fibrous tumour there attaches no such tendency to reappear.

*Fatty and fibro-cellular tumours of the vulva.*—Dr. Churchill<sup>2</sup> relates cases in which tumours answering this description have been present. Sir Henry Thompson has related an instance in which a firm lobulated tumour, weighing when removed nearly four pounds, grew from the external generative organs, hanging down to within two inches of the knees. Its surface was fissured and nodulated, and it was made up of hypertrophied cellular tissue, with fat in the interstices. It had been growing for nine years. The patient's age was 46. The tumour was chiefly inconvenient from its size.<sup>3</sup>

The *encysted tumour* of the vulva is rare. It grows to the size of an egg or less, and is found just within the vulvar aperture on one side. I have seen two instances of it.

Capelle records the case of a woman, æt. 30, who had an enormous enlargement, termed by him a *lipomatous tumour*, the size of the head of an adult, originating in the right labium and extending as far as the knee. It was removed by the knife.<sup>4</sup> The growth of the tumour dated from ten years previously.

*Oozing tumour of labia.*—A solid œdematous condition of the labia, with great secretion from the muciparous follicles, is sometimes met with. It is generally confined to one side; the enlargement is smooth, but firm; the surface is somewhat lobulated; and there is a profuse watery secretion. This condition was first described by Sir C. M. Clarke.

#### TREATMENT OF TUMOURS OF THE LABIA.

The various forms of tumour of the labia are usually only to be treated by one method, viz. excision. The risk attendant on this operation is not usually considerable, but when the tumour is very large, or attached by a broad base, the hæmorrhage may be difficult to restrain, and it may be necessary to secure the vessels one by one as the operation is being performed; in some cases it is advisable to transfix the pedicle thrice or more, in order to secure control over the hæmorrhage preparatory to commencing the incision.

<sup>1</sup> Schmidt's *Jahrb.* vol. cv. p. 63.      <sup>2</sup> *On Diseases of Women*, 4th edit.

<sup>3</sup> *Trans. of the Path. Soc.* vol. vi. p. 269.

<sup>4</sup> *Journ. de Méd. de Bruxelles*, Jan. 1860, p. 41.

The *encysted tumour of the vulva* is best treated by dissecting it completely out; if preferred, it may be simply punctured, but the cyst is then liable to refill.

In cases of oozing tumour of the labia, extirpation of the labium has been performed. Our present knowledge of the disease is somewhat vague and unsatisfactory; few opportunities are afforded for observing it, or for ascertaining whether it be a peculiar disease, or a modified form of the affection known as eczema of the vulva. Dr. Churchill recommends great attention to the state of the general health in such cases, and administration of a good generous diet. Rest, the use of astringent applications, as starch, decoctions of oak bark, or lotions, constitute the palliative treatment.

#### HERNIA OF THE LABIA.

An enlargement situated at the upper part of the labia on one side may be due to a hernia in this position. The hernia follows in such case the course of the round ligament. It is characterised by the position, which is in the course of the ligament in question, by its painlessness (unless inflamed), and by the impulse communicated on coughing.

#### HERNIA OF THE OVARY.

In some very rare cases, a tumour is observed at the upper part of the labium on one side (in the celebrated case related by Mr. Pott, on both sides), and constituted by the ovary, a pouch of the peritoneum in such cases being prolonged into the situation in question. Dr. Meadows has recorded a very interesting case,<sup>1</sup> in which there appears to have been primarily an ordinary irreducible inguinal hernia, but secondarily an ovarian hernia. The tumour in this case gave rise to so much inconvenience that it was removed by a surgical operation.

#### VARIOUS FORMS OF INFLAMMATION OF THE VULVA.

*Vulvitis*.—Acute inflammation of the vulva may be produced by blows, by undue exertion in walking, by intemperate sexual intercourse, by masturbation, by gonorrhœal infection, by syphilis; and it may occur in conjunction with affections of the vulva or

<sup>1</sup> *Obst. Trans.* vol. iii.



vagina of a chronic character, such as lupus, follicular inflammation, cancer, etc. Erysipelatous inflammation is found to occur here, as on other parts of the surface. Abscess of the vulva, in which a circumscribed enlargement of one part of the vulva only is present, is not included in the present series of cases, though vulvitis may lead to abscess.

The inflammation of the vulva produced by any of the foregoing causes may be more or less intense in degree, and the appearances observed will vary according to the time at which the observation is made. Swelling of the labia, pain on movement of any kind, tenderness, pain in micturition, redness of the mucous membrane, with more or less irritative fever,—these are usually present at the commencement of the disease. A discharge more or less copious, and generally of a purulent or muco-purulent character, is found issuing from between the labia; the skin at the upper and inner parts of the thighs is excoriated. The swelling may be very considerable. If the case be not seen until a later period, the swelling may have subsided; but the tenderness, together with a constant discharge, and a troublesome irritation and excoriation of all the mucous surface, are usually still found to be present.

In some cases we find the mucous surface of the vulva covered by diphtheritic patches of exudation, there being at the same time a subacute inflammatory condition of the vulva generally. The patient is, under such circumstances, weak and prostrated, and these cases may occur epidemically.

An aphthous form of inflammation may attack the vulva—an affection more especially observed, however, in children.

With vulvitis may be conjoined inflammation of, or discharge from, the vaginal canal higher up; and in fact chronic vulvitis is usually associated with vaginitis. But the inflammation is very frequently almost entirely limited to the surfaces of the vulva; and hence the necessity for considering such cases apart.

*Chronic inflammatory affections of the vulva.*—In *eczema* of the vulva, we find redness of the skin of the folds between the labia and the thighs and their neighbourhood, producing very constant and troublesome itching. Undue walking exercise is sometimes sufficient to produce this affection in a mild form. There is, however, a more chronic and obstinate form of the affection not uncommon. When the disease has become thus chronic, the skin is often found thickened, hypertrophied, and the hairs have in great part disappeared. *Prurigo* of the external genitals is

not common; pruritus, where noticed, being due to other conditions of the parts.

*Vulvar folliculitis*, a condition for our knowledge of which we are indebted to Dr. Oldham and Huguier of Paris, is constituted by the presence of little rounded prominences irregularly scattered over the surface of the vulva. These prominences are painful and irritable, and after a time break and discharge a little puriform fluid; and the surface of the vulva generally becomes inflamed and red, and in places ulcerated. The inflammation is seated in the mucous follicles of the surface. This condition is met with more especially in pregnant women and during the heat of summer, and appears to be caused by want of cleanliness, by excessive indulgence in sexual intercourse, etc. The sphincter of the vagina is frequently, according to Dr. Oldham, contracted; and a painful hyperæsthetic condition of the vulvar orifice is sometimes associated with this follicular inflammation. The little ulcerated surfaces left after the escape of the pus are distinguished from ulcers due to syphilis by the fact that in syphilis the ulceration is more generally on the inner surface of the labia minora, by the larger surface of the ulcer, and by the peculiar history of its appearance; whereas, in vulvar folliculitis, the whole vulva is more or less affected, the surface ulcerated is very small, and not inclined to spread.

The affection is a very painful one; the patient finds a difficulty in sitting comfortably; pain on intercourse, troublesome pruritus, occasional bleeding from the surface, slight discharge—these symptoms are, one or more of them, generally observed.

#### TREATMENT OF INFLAMMATORY AFFECTIONS OF VULVA.

Rest, frequent ablutions, and attention to the general health, are of great importance, more especially in chronic cases.

In the treatment of cases of eczema of the vulva, in addition to rest, ablutions, etc., the use of lotions of glycerine or of solution of carbonate of soda will be found efficacious; when the disease is chronic, caustics are often the only effectual remedies.

In cases of follicular inflammation of the vulva the use of a weak lead lotion, rest, and attention to the general health, will do much to remove the disease. Dr. Oldham's favourite remedy is an ointment containing hydrocyanic acid (2 drachms), diacetate of lead (a scruple), and cocoanut oil (2 ounces), the parts being bathed with cool water before applying the ointment. In some

cases of this affection which have come under my own notice, I have used nitrate of silver, in the form of a strong solution, with satisfactory results.

#### VULVITIS, AND DISCHARGES FROM THE GENITALS, IN CHILDREN.

These cases require to be considered apart. A good deal of misconception, and consequent injustice to individuals, have arisen in connection with this subject, and it is only now beginning to be extensively recognised as a fact that vaginal discharges from the generative passages in young children may occur quite independently of contagion.

The discharges from the genitals observed in children have, for the most part, their origin in the glands just within the vulva, the vaginal canal within the hymen being generally unaffected.

The following are the chief causes of vulvitis in children :—

1. These discharges are often witnessed in children of scrofulous or debilitated constitutions.
2. They may frequently be traced to the presence of ascarides in the rectum, directly or indirectly producing such an amount of irritation as to cause leucorrhœa.
3. Simple want of attention to cleanliness may be the only assignable cause.
4. A form of leucorrhœa is sometimes prevalent in children simultaneously with diphtheritic affections of other mucous passages.
5. Gonorrhœa communicated by the male.
6. The irritation of dentition.

The fact that the child is weakly, or showing other signs of a constitutional tendency to scrofula, would lead us to connect the presence of a vaginal discharge therewith. If the leucorrhœa proceed from vermicular irritation, there is generally extreme irritability and itching in the neighbourhood of the rectal orifice, and other well-known signs of the presence of these parasites are observed. A circumstance which I have noticed more than once in connection with the presence of ascarides in the rectum, is the objection children affected with them have to sitting on soft cushions: anything hard or angular is preferred.

Cases of rape on children sometimes result in the production of discharge of a gonorrhœal nature. The moral evidence is, in the case of very young children, often open to great suspicion; the medical evidence must be given with great circumspection, for it is in the case of very young children that discharges from other causes are, as has just been pointed out, by no means unfrequently observed.



In cases where 'violation' is suspected, the condition of the vaginal outlet is an important subject for consideration. A complete discussion of this interesting subject cannot be entered into here. The chief points to which attention should be directed, however, are the following: In *children* examined soon after violation has been effected, there are marks of violence on the external genitals, which may be bruised and lacerated, the laceration generally affecting the perinæum, and together with this the hymen is found torn. These are the more usual results observed. The presence of a *discharge* from the genitals of a child, which the friends of children among the lower classes are often disposed to attribute to the effects of intercourse, is a circumstance which by itself is worth nothing as a sign of violation. The evidence of injury to the perinæum, and of laceration of the perinæum, is much more to be relied on than the mere presence of a discharge. For further information the reader is referred to the standard works on 'Medical Jurisprudence.' In children the signs of violation persist for a much longer period than in adults, and, in the case of the former, signs may still be present from eight to fourteen days after the occurrence. In adults the marks of violence observable are often very trifling, especially in the case of married women, and, unless extreme in degree, these evidences disappear very rapidly. In cases of suspected violation, both in adults and children, the microscope might be very usefully employed in rendering the diagnosis more certain. The spermatozoa are capable of being recognised for a very considerable time after being deposited in the vagina, and there is reason for believing that, under favourable circumstances, they might be found in the mucus of the upper part of the vagina even as late as twenty-four or thirty-six hours after intercourse has been effected.

#### PRURITUS OF THE VULVA.

The terms 'pruritus vulvæ,' 'pruritus of the vagina,' etc., have been used to designate a class of symptoms referable to the generative organs, in themselves very distinctive and characteristic, and which are also exceedingly troublesome and inconvenient to the patient.

Varying exceedingly in form and degree, the essential characteristic of the class of symptoms now to be considered is an itching sensation, impelling the patient to relieve herself by rubbing or scratching the part affected. The sensation is now and then a

kind of formication only—a creeping, uncomfortable feeling on the surface of the external generative organs. More commonly, however, the sensations complained of are more intense in degree and somewhat different in kind. The irritation was accurately described by Dr. Rigby as ‘like that of urticaria, viz. a sensation of intolerable pricking and tingling, combined with burning heat and intense itching.’<sup>1</sup> It is worse at some times than at others; it is not seldom quite intolerable to the patient. Scratching affords hardly a temporary relief, and shortly itself gives rise to further inconveniences. Combined with the itching there is more or less constantly a feeling of heat in the parts affected quite as distressing as the other sensation.

Even in the worst cases there are usually remissions, during which the patient is more free from discomfort; and, as a general rule, it is stated that at certain times of the day, or under certain peculiar circumstances, the sensation is experienced much more intensely: the affection is, indeed, more or less paroxysmal. Warmth particularly is liable to bring on a paroxysm; the heat of the bed is especially unbearable, the patient being obliged to leave her bed almost every quarter of an hour to obtain relief. After eating or drinking, too, the distress is usually greater. The congestion of the genital organs, associated with approach of the menstrual period, aggravates the affection.

The actual *seat* of the sensation is open to some variation. In most cases the irritation is not confined to one spot, but is felt equally over the pudendum, over the labia, and, in fact, all round the vaginal aperture. In some cases, the nymphæ, the surface of the clitoris, and the adjacent surface of the vaginal canal, especially the anterior commissure above the clitoris, are the parts more particularly affected. Lastly, there are a certain number of cases in which the sensation has its seat, not at the external generative organs, but more internally.

The affection may be observed in women of all ages. It is perhaps most frequently observed at the climacteric period, when the menses are about to cease, although it is by no means limited to this period. It is more often observed in women advanced in life than in young women. The unmarried and married are almost equally liable to it.

As regards the duration of the affection, it varies. Women sometimes remain subject to it for several months, or even longer. The pruritus is in many instances so persistent that the patient

<sup>1</sup> *On Diseases of Women*, p. 247.

becomes worn out, exhausted, and prostrated in the extreme, owing to the want of rest, the annoyance, and the pain so long continued. The necessity of applying the fingers to obtain a slight temporary relief by scratching excludes her from society. Altogether, a bad attack of pruritus is about as troublesome and inconvenient an affection as any to which a woman can be subject.

What is the nature, and what are the causes of the affection? The affection varies very much as regards its nature and causes in different cases. It is possible that at the beginning the affection may be in the majority of cases identical; but in practice we find that most cases, when they come under observation, are of a mixed character. Scanzoni regards the affection as hyperæsthesia of the sensitive nerves of the vagina, in some cases idiopathic, in others secondary, and in the latter depending on various affections of the ovaries, vagina, uterus, etc.; and the various alterations of the external generative organs witnessed in conjunction with it are considered by this author secondary in their nature.

I have met with some very marked cases where the pruritus was most unquestionably due to acute ante flexion of the uterus, the disorder disappearing instantly the position and shape of the uterus were altered. Scanzoni also places flexions among the list of causes of pruritus.

Any circumstance favouring *congestion of the generative organs* may give rise to it. Thus, in the earlier months of *pregnancy* it is not rarely observed. Where a sluggish, inactive condition of the abdominal viscera is present, associated with digestive derangements, as in individuals taking but little active exercise and living well, there exists a liability to the affection: in cases of the latter description, hæmorrhoids are frequently present, and constipation is very generally observed. It is in cases coming under this category that the pruritus is found most often associated with a good deal of hyperæmia of the external generative organs; and in this class of cases, also, the scratching and rubbing most frequently have the effect of producing inflammatory changes of the vulva and parts adjacent.

*Chronic diseases of the uterus* are frequently connected with pruritus of the genital organs; in *carcinomatous* disease of the uterus, the affection in question is certainly very frequently witnessed. Possibly the frequent association of uterine cancer and pruritus is connected with the acrid character of the fluid discharges then passing over the vulva. Cases in which it was due to



*superficial granular erosion of the os uteri* are mentioned by Drs. West and Churchill.

*Radical disorder of the general health*, quite independent of disease of the generative organs, has been found to be the cause of pruritus in some cases. Thus Dr. West alludes to an instance in which a young lady suffered severely from pruritus, which turned out to be due to diabetes.

An *acrid condition of the secretions of the sebaceous glands of the vulva* appears to be sometimes the cause of the pruritus. *Ascarides* in the rectum have been known to produce it.

In individuals of uncleanly habits, pruritus of the vulva is sometimes produced by the presence of *pediculi*.

An *aphthous* form of inflammation of the vulva was first alluded to by Dr. Dewees as now and then giving rise to pruritus of the vulva; the inner surface of the vulvar commissure being covered with little aphthous patches, and more or less congestion of the parts generally being conjoined. How far this condition is primary or secondary cannot be considered as determined.

Inflammation of the mucous follicles of the vulva—*vulvar folliculitis* (Oldham)—is a disease of the vulva in which troublesome pruritus may be present.

In a case which came under my own notice, very intense and obstinate pruritis was found to be dependent on the presence of *warty growths from the under or vaginal surface of the urethra*, the whole forming a tumour the size of a walnut. In this case the removal of these growths was necessary, and a cure soon afterwards resulted. The *vascular tumour of the urethra*, which, as is well known, grows within or at the urethral orifice, gives rise to great disturbance to the function of micturition; less frequently, it is a cause of pruritus.

Lastly, it may be stated generally that there are few alterations in the mucous surface at or near the vaginal aperture which may not be associated with pruritus.

*Treatment*.—The *general* treatment of pruritus of the vulva consists in correcting whatever may be found wrong or prejudicial to health in the habits, mode of life, diet, and regimen of the patient. The digestive organs should be duly watched, constipation prevented. The food given must be light and simple. In that form of the affection observed in women past the climacteric age, when there is debility, defective digestion, and want of appetite, without any, or, at all events, any considerable, alteration of the skin covering the pudendum, mineral acids combined with

bitter infusions are of the greatest service. Small alterative doses of blue pill are occasionally useful.

The *local* treatment consists in the removal of any condition which may be found to be associated with the pruritus, whether it be the cause or the effect of the same. And this local treatment will be, according to the nature of the case, palliative or curative. The local treatment will necessarily vary according to the actual condition of the parts discovered on examination. It is generally the case, indeed, that some abnormal condition of the surface of the labia and adjacent parts is present, which, as before remarked, may be primary or secondary as regards the pruritus. In some cases the local treatment is all that is necessary for the cure. Cleanliness is the first essential. The external genitals must be frequently and thoroughly washed with tepid or quite cold water. The hip-bath should be frequently used, for the application of water is almost always grateful to the patient. If there be much fulness of the blood-vessels of the vulva, leeches are sometimes necessary. A rather strong cauterisation of the os uteri with solid nitrate of silver will sometimes succeed when other measures fail.

Respecting special topical remedies, Scanzoni speaks most highly of a mixture consisting of chloroform two parts, and almond oil thirty parts, to be applied to the surfaces of the labia and of the ostium vaginæ. I have found this remedy of the greatest service, but the quantity of chloroform is too small. One part of chloroform in six of oil is the proportion I have used. Dr. West finds goulard water and hydrocyanic acid a very valuable application. When aphthæ are present, borax in solution with a little morphia (borax  $\zeta$ iv., morph. hydroch. gr. viij., rose-water  $\bar{5}$ x.—West) has been found very efficacious. Dr. Rigby found an ointment composed of equal parts of ung. hyd. nit. ox. and cod-liver oil very successful when other measures had failed. Alum and powdered sugar, sprinkled over a tampon of cotton and inserted in the vagina twice a day for a week, is a remedy used by Scanzoni. The latter author states that Scholz's remedy, the calladium sequinum, has in his hands given satisfactory results. Cauterisation by means of nitrate of silver has been employed by several. For pediculi Churchill recommended turpentine, tobacco, or calomel in powder.

Rest, cooling lotions, etc., are sometimes required to subdue the inflammation consequent on the scratching.

## CHAPTER LI.

## DISEASES OF THE VAGINA.

Methods of Examination ; Digital and Ocular Examination—Normal Condition of the Vaginal Canal.

OBSTRUCTIONS OF THE VAGINAL ORIFICE AND VAGINA ; THEIR DIAGNOSIS.—Diagnosis of suspected defective Development, or of entire Absence of the Uterus, Vagina, etc.—Double Vagina—Hardness or Resistance of the Vaginal Wall.

TUMOURS PROJECTING AT OR BEYOND THE OSTIUM VAGINÆ.—DIAGNOSIS.—Cystocele ; Ascites with Prolapse of Vaginal Wall ; Vaginal Cyst ; Menstrual Retention—Vaginal Rectocele ; Entero-vaginal Hernia—Tumours connected with the Uterus—Polypus of the Vagina.

DISEASES OF THE VAGINA.—Congenital Defects : Stricture of the Vagina—Extreme Narrowness—Various unusual Conditions of the Hymen—Menstrual Retention associated with Imperforate Hymen—Treatment of Defects and Occlusions of the Vagina.

Vaginitis : Treatment—Spasm and Hyperæsthesia of the Vulva—Treatment.

Fistulæ : Vesico-vaginal and Recto-vaginal Fistula—Treatment.

Tumours of Vaginal Walls—Treatment.

*Methods of examination.*—The ordinary method of obtaining information as to the condition of the vagina is by the introduction of one or more fingers into the canal—*digital* examination. It is sometimes necessary to add to this an ocular examination of the canal, either with or without the aid of the speculum.

*Digital examination of the vagina* is effected in the following manner. The patient lying on the left side, the forefinger of the right hand, previously well oiled, is introduced between the labia and into the vagina. For the purpose of ascertaining the condition of the parts near the lower extremity of the canal, the introduction of one finger is sufficient ; but it is generally necessary to introduce the second finger also, to examine the condition of the vagina higher up : in a few cases, the introduction of all the fingers is found necessary. In effecting this operation, the left hand should be placed on the right hip of the patient. This assists in giving a correct idea as to the position of the entrance of the vagina. The finger or fingers must be introduced slowly and with care.



The examination of the *canal of the vagina* is accomplished by the finger or fingers introduced as before described. Information is thus obtained as to the size, shape, and direction of the canal, as to the state of the lining membrane, its sensibility, smoothness or roughness, and its temperature. In certain cases, the eye may be also used, in order to ascertain the presence of undue redness or other changed conditions of the mucous membrane, and a more minute examination of the canal by means of the speculum is necessary where the presence of unnatural communications between the vagina and the bladder or rectum is suspected; also in some other cases.

*Normal condition of the vaginal canal.*—With the patient lying on the left side, the distance from the upper extremity of the vagina to the situation of the hymen is, in round numbers, three inches, as a rule rather less. This distance measured off on the forefinger, extends from the point of the finger to the centre of the proximal phalanx; but the measurement from the upper part of the vagina to the lowest part of the commissure of the vulva is four inches. Thus the distance from the external surface of the body to the extremity of the vagina is one inch greater than that of the vagina itself. Normally, when the tip of the forefinger touches the highest point of the vagina, the metacarpophalangeal joint corresponds exactly with the entrance of the vulva. In very stout subjects the distance appears greater because of the thickness of the lips of the vulva.

In effecting an *ocular* examination of the vagina, the patient is placed in the position above described, or, as is more convenient under some circumstances, lying on her back and the knees separated. The examination by means of the speculum is also effected in either of the two positions indicated, but most easily in the latter. In searching for fistulæ in the vesico-vaginal septum, the patient is sometimes placed on the hands and knees.

#### OBSTRUCTIONS OF THE VAGINAL ORIFICE AND VAGINA : DIAGNOSIS OF THESE.

On attempting to introduce the finger at the vaginal orifice an obstruction may be encountered. This obstruction may be due to any one of the following conditions:—

- Adhesion of the labia majora ;
- Absence of the vagina (congenital) ;

Imperfeet formation of vagina ;

Presence of the unruptured hymen ; or,

Stricture of the lower part of the vagina (acquired).

Adhesion of the labia majora is distinguished from absence of the vagina by the use of the probe or finger. Imperfeet formation of the vagina is also readily distinguished from either of these two former conditions. Obstruction due to the hymen is distinguished from the two former by its situation, the hymen being a short distance within the vaginal canal and not on a level with the perineal surface.

In cases where the vagina is very short, ending at or near the position of the hymen, the physical examination may reveal conditions pretty nearly resembling those present where the hymen is the obstructing agent ; the finger can only be made to pass a short distance. The distinction then rests on the presence of the catamenial discharge in the latter, its absence in the former class of cases. Where there is obstruction to intercourse, but menstruation is present, it is clear that the vagina cannot be, altogether at least, absent. But there may be obstruction to intercourse from presence of a thickened, but still perforated, hymen. If the hymen were absolutely imperforate, there would be menstrual retention with its peculiar signs, in addition to other signs of obstruction. Congenital stricture of the vagina is usually situated higher up than the seat of the hymen. Congenital narrowness of the vagina would be easily and obviously distinguished from obstruction due to thickened hymen. Spasmodic action of the sphincter vaginae may produce obstruction to the entrance of the finger, or to sexual intercourse, but this form of obstruction could hardly be confounded with that due to thickened or imperforate hymen.

*Diagnosis of cases of suspected defective development or of entire absence of the uterus, of the vagina, etc.*—It is occasionally necessary to determine what is the state of the internal generative organs in such cases, in reference to the advisability of recommending marriage, etc.

In the first place, it appears from a careful consideration of recorded facts, that the conditions presented by the *external* generative organs give but little clue to the condition of the internal generative organs ; that is to say, that there is no constant and invariable relation between the degree of the development of the generative organs, external and internal. Thus we meet with cases recorded in which the vulva, being pretty well developed, the

pubes well covered with hair, the breasts not imperfectly formed, the uterus is entirely absent. And the opposite condition has been met with, viz. absence of developed external generative organs with presence of a uterus sufficiently well formed to exercise its functions. Between the two extreme cases all sorts of gradations are witnessed and have been recorded. In cases where the internal generative organs are imperfectly formed, the variations from the normal standard are numerous in kind and degree; the uterus may be double, one cornu being well developed, the other imperfectly so, or both equally well developed. In extreme but very rare cases, the uterus is entirely wanting. Kussmaul,<sup>1</sup> in his elaborate work, states that in many of the older recorded cases of absence of uterus the nature of the condition which was actually present is not clear, as the diagnosis rested on the absence or defective condition of the vagina; and he believes that in the more modern instances, even where the more careful and extended examination to be presently described was performed, one cornu of the uterus may still have been present, escaping recognition.

It is more usually the case, that where the uterus is defectively formed, the vaginal canal is also defective in some way; but cases are on record in which the vaginal canal has been altogether absent, while the uterus has been well developed enough to fulfil its functions: in these instances most may be done in the way of relief to the patient.

1. The indications offered by the state of the *breasts*. They may be found tolerably well developed in cases where careful examination convinces us that the uterus is wanting, and the vagina absent. And as Kussmaul very pertinently observes, the mammary glands do now and then become enlarged and developed in the opposite sex. The presence of breasts tolerably large and developed would, however, inform us that the patient had arrived at the age of puberty.

2. The development of the vulva, presence of hairs on the pudendum, etc. The vulva may be apparently well formed, there may be the usual amount of prominence of the mons veneris, the parts may be well covered with hair, and, in fact, the external appearances may be such as are observed under normal circumstances, and yet the uterus and vagina may be wanting. Indeed, cases have been observed, as the one related by Dr. Ormerod and Dr. Quain, in which, with these external apparent evidences of womanhood and capability for marriage, not only was the uterus

<sup>1</sup> *Op. cit.* p. 108.



absent, but the ovaries were wanting. A 'small mass, apparently of a glandular structure,' found in the left wall of the narrow sac representing the vagina, was the only possible representation of the ovaries.<sup>1</sup> The patient died in an anæmic state at the age of 33, and had suffered from nasal hæmorrhages, the monthly periodicity of which seemed to point to the existence of a sort of vicarious menstruation. The case is remarkable as showing very clearly how little relation subsists, necessarily, between the development of the external and internal sexual organs. I have myself met with cases in which the breasts were normal, the pudendum normal and well covered with hairs, but no evidence of the existence of a uterus could be obtained.

When it is an object to ascertain by examination whether the uterus and vagina be present or not, the method to be pursued is the following: A catheter is to be introduced into the bladder, which should not be empty at the time the examination is made, and held lightly but firmly therein. One or two fingers of the left hand, well oiled, are then to be introduced as far as possible into the rectum. The catheter can now be felt by the extremity of the finger in the rectum, and a means is at once afforded of judging of the nature of the tissue intervening. If the uterus be absent, the catheter can be felt by the finger high up in the pelvis, and no intervening hard substance, such as that constituted by the uterus, can be detected; but it is necessary, in order that this point may be conclusively made out, that the catheter in the bladder and the finger in the rectum should be pushed as far as possible, for if the catheter be only just made to enter the bladder, the point of the instrument is, under ordinary circumstances, readily felt by the finger in the rectum. The uterus would of course be sought for in the first instance in the middle line of the body, but if a careful examination failed to discover any hard substance in that position, it should be sought for on each side. Where the uterus is double, it is very frequently not symmetrical, the one cornu being large and well developed, the other small and imperfect; and in such a case the larger cornu lying, as it would do, rather to one side, might not at first be made out, or if made out, might be mistaken for something else (Kussmaul). This double or combined examination by the rectum and bladder is thus capable of giving important information, for although we might not be able to affirm after making such an examination that the uterus was entirely absent, we could hardly fail of

<sup>1</sup> *Trans. Path. Soc.* vol. vii p 271.

detecting the presence of an enlarged and distended uterus, supposing the uterus to be so enlarged and distended. The uterine sound is, in some cases, a better instrument to introduce into the bladder than the female catheter, as it is more under command of the hand and can be bent to any required degree.

The method of examination in question also enables us to form some idea as to the condition of the parts in suspected absence of the vagina. Thus, in cases where the only external evidence of the existence of a vagina is the presence of a small blind sac which is just capable of receiving the point of the sound, or in cases where the sac is large enough to admit the little finger for an inch or two, the combined examination furnishes data of some value. If the parts intervening between the point of the instrument and the finger be very thin, this gives reason to think that there is no vaginal canal between: but this is by no means conclusive evidence of the fact. If the uterus were found very small, or absent altogether, the vagina would be more likely to be also absent. But, on the other hand, supposing the uterus were found to be present, the septum between the rectum and the catheter being apparently very thin, it would require some care to decide as to the presence or absence of the vaginal canal in this thin septum. In some cases the uterus is pretty well formed, and becomes distended with menstrual blood, which cannot escape, because the vagina is absent at some part of its course; and the vagina may be nearly the natural size at its extreme upper and lower portions, the intermediate portion being wanting; or it may be, as is the more common case, very small below, and absent above.

*Double vagina.*—The vagina may be double, in which case two canals open side by side externally. The septum between them is usually very thin. (See ‘Malformations of Uterus.’)

*Hardness or resistance of the walls of the vagina.*—A condition of the wall of the vagina, recognisable by the touch and very important in a diagnostic point of view, is *firmness, hardness, and resistance*, especially at the upper and interior part of the canal. The vagina appears to the touch fixed, rigid, and immobile; such a condition is one of the early signs of the presence of cancer of the lower part of the uterus. The non-resistant, soft, velvety feel of the mucous membrane is wanting in such cases at the affected parts.

*Cancerous disease of the vagina* is more frequently not primitive, the disease usually spreading from the uterus. When the disease has far advanced, we may find the vaginal walls very much

thickened by the cancerous deposit; nodulations may be felt; and ulcerations, which, when sufficiently advanced, give rise to production of fistulous openings, are detected by the finger. The diagnosis of the cancer of the vagina is intimately connected with that of cancer of the uterus, the general symptoms present in the two cases being, for the most part, identical.

#### TUMOURS PROJECTING AT OR BEYOND THE OSTIUM VAGINÆ; DIAGNOSIS.

**SOFT NON-RESISTANT TUMOURS.**—A soft *fluctuating* tumour presenting itself at the ostium vaginæ may be constituted by a *prolapsed bladder* (cystocele), the cervix of the uterus being very generally in such cases prolapsed together with the bladder. Or there may be *prolapsus of the vaginal wall in conjunction with ascites*. In the former case there is a peculiar difficulty in regard to micturition, for the patient is unable to evacuate the bladder perfectly unless the swelling be first reduced by pressure upwards. Micturition is frequent and painful, a ropy mucus is usually present in the urine discharged from the bladder. The catheter introduced passes downwards into the tumour, the nature of which is thus at once made manifest. In the case of the other, but less common, affection the tumour is also reducible by pressure, but returns on the patient resuming the erect posture. Dr. West<sup>1</sup> relates a case in which a *cyst of the vagina*, the size of an egg, projected from between the vulva, and had just the appearance presented by a prolapsed bladder. By the use of the catheter, however, the nature of the tumour was made evident.

In cases of *retention of the catamenial fluid from imperforate hymen*, there will be found between the labia on examination by the finger a somewhat tense tumour with fluid contents, and this tumour may project slightly from within the os vaginæ. In such a case the absence of menstruation, and the impossibility of finding an opening into the vaginal canal, would clearly indicate the nature of the case.

A soft but *non-fluctuating* tumour projecting from the vagina at its inferior part, and reducible by pressure, is present in cases of *vaginal rectocele*. In such cases the nature of the tumour is easily made out, the scybalæ in the projecting pouch of the rectum

<sup>1</sup> *Op. cit.* p. 634.



are felt by the finger: moreover, the finger can be introduced in *front* of the tumour; in cases of cystocele, on the contrary, the finger passes only *behind* the tumour.

*Entero-vaginal hernia.*—Another variety of tumour is that due to hernia of the intestines—entero-vaginal hernia. This is a rare affection. Some exceedingly interesting cases of the affection are related at length in the work of the late Dr. D. D. Davis.<sup>1</sup> A case of this rare affection was also recorded by Mr. Prescott Hewett.<sup>2</sup> The tumour projected beyond the labia, and proceeded from the floor of the vagina. The patient was suffering from symptoms of obstruction, and had not called attention to the existence of the tumour in question. Dr. Fordyce Barker,<sup>3</sup> in an interesting paper, relates four cases. In the first, swelling came on during labour; it was reduced under chloroform; labour proceeded well; cure. 2. A pregnant woman at seven months had a sudden strain; pain; severe peritonitis; a soft tumour was found projecting at vulva, size of the fist; reduction; lint and tannin pessaries employed; delivery at term; cure. 3. Patient in eighth labour twenty-eight hours; violent hysterical mania; urine drawn off under chloroform; the head was found descending, and a vaginal enterocele also; it was reduced; the forceps applied; delivery; cure. 4. By Dr. Clements. Misstep in the seventh month of pregnancy; fall forwards, followed by pear-shaped protrusion; reduced by fingers; kept in bed five weeks, but tumour always came down on defæcation; delivered at term. Nine days after labour violent pain during defæcation, followed by shivering, cold extremities, nausea, fainting; chloroform and knee-chest position; relief; protrusion felt in vagina, size and shape of distended thumb of a glove, at bottom of Douglas pouch, a little to right. Several succeeding attacks came on after rising in the morning, and in fifteen minutes developed symptoms of acute peritonitis; pain and tenderness; tympanitis; rapid pulse. Sponge pessary used with advantage. Attacks gradually went off at end of two years.

The nature of the tumour is recognised by means of the tympanitic sound elicited on percussion, by the impulse produced on coughing, usually by the possibility of reduction of the tumour by the taxis, or on the patient assuming the horizontal posture. The employment of the catheter will distinguish the case from one of cystocele.

<sup>1</sup> *Principles and Practice of Obstetric Medicine*, vol. i. p. 161.

<sup>2</sup> *Brit. Med. Journ.* Sept. 1861, p. 254.

<sup>3</sup> *Amer. Journ. of Obst.* vol. ix. p. 177.

HARD RESISTING TUMOURS PROJECTING FROM THE OSTIUM VAGINÆ. — When the projecting tumour is more or less solid or firm, it is due to *inversion of the uterus*, *polypus of the uterus*, *prolapsus of the uterus*, or to *elongation and hypertrophy of the cervix uteri*. With these may be combined prolapsus of the adjacent organs, the bladder, rectum, etc.

We may now proceed with the description of the various

## DISEASES OF THE VAGINA.

CONGENITAL DEFECTS.—In some rare instances certain of the external generative organs are wanting, or exhibit only a rudimentary formation. The whole of the external sexual organs may be found absent, or there may be present what is termed ‘cloacal formation,’ the rectum, the vaginal canal, and the urethra opening into one common external orifice. And irregularities of other kinds may be observed, giving rise to conditions which have been described as due to hermaphroditism. A full consideration of these various kinds of defective formation of the external generative organs cannot be entered upon in this work. Particulars concerning these rare cases will be found in several systematic treatises.<sup>1</sup> The defects which are the most practically interesting are those which relate to the condition of the orifice of the vagina, and the canal of the vagina itself. These have been already described in the previous remarks on the diagnosis.

## STRICTURE OF THE VAGINA.

There are two classes of cases coming under this denomination. First, we have those *congenital* instances in which the vagina is normal below, the hymen in its usual position, but a short distance above the hymen the finger meets with an obstruction—the canal of the vagina, in fact, appears far too short. The apparent shortness may prove to be due to presence of a fibrous or membranous septum dividing the vagina above the hymen into two parts. The usual seat of this septum is the junction of the upper with the middle third of the vagina. Secondly, we have cases of real stricture of the vagina, due to adhesions of the opposite walls,

<sup>1</sup> A good account of the subject will be found in Kiwisch's *Klinische Vorträge* Band ii. (third edition, by Scanzoni. Prague: 1857). On the subject of hermaphroditism, the reader is referred to the admirable essay by Sir J. Y. Simpson, published in vol. ii. of his *Obstetric Works*.

following after lacerations or wounds of the vagina, in parturition, with subsequent cicatrization and contraction.

Regarding the congenital class of cases, we may have complete absence of an opening in the septum, there being then usually found to be present an accumulation of menstrual blood above the obstructing membrane or partition ; or, on the other hand, there may be an opening sufficient to allow of the escape of menstrual blood. It is obvious that in the former case there is no possibility of menstruation occurring, and impregnation is equally impossible. Such instances are not common. Complete congenital closure of the vagina might be confounded with imperfect hymen, or with imperforate condition of the os uteri. Incomplete (*i.e.* permeable) congenital stricture of the vagina might be confounded with obstruction from resistant hymen. The diagnosis in these several instances would be made out by careful combined examination by the vagina and rectum. The finger being introduced into the rectum, the observer is enabled to determine whether the obstruction felt be really the extremity of the vagina or not ; the position of the uterus would indicate this clearly enough. It is of great assistance in such cases to make an examination during the menstrual period, as apertures are then found which escape recognition at other times.

The cases of acquired complete stricture of the vagina are very easily distinguished from those of the congenital variety by the circumstance that in the latter cases the patient has never menstruated. In acquired stricture of the vagina the canal at the seat of the stricture is generally irregular in form and shape, contorted or knotty, and firm fibrous bands are to be felt under the finger. The seat of the stricture may be high up in the vagina, or low down ; any part of the canal may be affected. Menstruation more often still persists, but the stricture, if complete, causes complete suppression ; and, moreover, the patient in the latter case remains afterwards sterile. The history very generally points conclusively to the diagnosis in these instances of acquired stricture of the vagina.

*Extreme narrowness of the vagina*, hardly amounting to stricture, may be met with, the canal being quite patent, although exceedingly small ; the condition simply interfering with due performance of sexual intercourse, though not necessarily with impregnation. It has importance, for this reason in the first place, and in the second from the circumstance that when the vagina is very narrow it is also often short, and the uterus is found



imperfectly developed. All degrees of this narrowness may be met with in different cases.

It may be worth while in this place to mention the fact that, in cases of vaginal stricture or narrowness, sexual intercourse has been known to have been effected by the urethra; the latter canal has in such cases been found to have undergone great dilatation.

The treatment of these various conditions will be considered presently.

#### VARIOUS MORBID OR UNUSUAL CONDITIONS OF THE HYMEN.

The hymen is a membrane varying exceedingly in its form, structure, and dimensions. On making a digital examination, the point of the finger, in passing backwards, downwards, and inwards from the point where the urethral orifice is situated, encounters the hymen, if this membrane be present; the membrane itself being situated within a short distance of the posterior labial commissure. The finger passes into a recess for a short distance before it comes in contact with the obstructing body. The most usual form of the hymen, where still intact, is crescentic, the concavity being directed forwards and upwards: the canal of the vagina is thus closed posteriorly, but not anteriorly. This is the most common form, but occasionally the hymen is circular, and the opening into the vagina is in its centre. In the first case the tip of the finger would meet with the opening a little nearer to the urethral orifice than in the second. The presence of the hymen was at one time considered evidence of virginity, and its absence proof to the contrary; but neither of these positions is sustained by known facts. Instances are recorded of the presence of the hymen in prostitutes who were at the same time the subjects of syphilis; on the other hand, in women of known virtue and propriety of conduct the hymen is often indistinct or wanting. If we are called upon to make a digital examination of a reputed virgin, we should expect to find a difficulty in introducing the finger into the vagina, owing to the presence of the hymen; but we should not be justified in forming a conclusion unfavourable to the character of the individual from the fact, alone, that no such impediment to the passage of the finger was experienced. And with reference to the *degree* of resistance, we should expect to find, in cases where the hymen is tolerably perfect, considerable differences in different cases. Thus, the membrane may be, and indeed

it usually is, thin and non-resistant enough to allow of the ready distension and stretching of the orifice in its centre or at its side by the pressure of the finger ; in certain rare cases this condition persists after marriage with the occasional very troublesome result that intercourse is imperfect or impossible : on the other hand, it may be so dense and tough as to resist this distension altogether, or the membrane may be so loose and lax that the pressure of the finger, instead of opening it, carries the membrane before it, as in the case of the finger of a glove pushed within itself. Lastly, there may be only such slight perforation in the membrane as to be hardly recognisable, and not at all by the point of the finger alone : the obstruction is apparently complete.

*Menstrual retention due to imperforate hymen.*—Menstrual retention associated with imperforate hymen is observed in young women who have never menstruated, who have arrived at puberty, and who have at that time experienced, monthly, and month after month, severe pain in the hypogastric region without any fluid escaping from the vagina, and who present symptoms indicative of distension of the uterus with fluid for which there is no natural outlet. In most of such cases, the hymen is found to be imperforate, and the finger, when introduced into the vulva, comes upon a very tense elastic swelling, constituted by the thickened hymen pressed downwards and put on the utmost stretch by the fluid incarcerated above it. The menstrual blood distends the vagina and the uterus under such circumstances, and we should expect to find evidence of such distension of the uterus in the presence of a round firm tumour above the pubes (see ‘Examination of the Abdomen’), or on examination from the rectum. But in some cases, although the patient has never menstruated, and although there are all the signs of menstrual retention present to an extreme degree, we do not find, on examination, any tense elastic swelling at the situation of the hymen ; for the menstrual retention may be due to congenital closure of the os uteri, or to an obstruction of the vagina higher up than the situation of the hymen. The latter description of cases will be presently considered. In one case which came under my notice there had been at first such a retention. The fluid was discharged by bursting, and the aperture afterwards again closed up but not quite completely, leaving such a minute aperture that it was with difficulty discovered.

## TREATMENT OF VARIOUS FORMS OF OCCLUSION OF THE VAGINA.

*Absence of the vagina.*—There are two classes of cases to be dealt with—(1) Those in which the absence of the vagina is accompanied with signs of menstrual retention; and (2) those in which no signs of menstrual retention are present. In the first class of cases operative measures are generally called for, while in the second this is not usually, or at all events necessarily, the case. The cases of retention have been already dealt with (see p. 449).

The point has hardly been raised as to whether in cases of absence of vagina without menstrual retention operative measures are called for. If the uterus be present, if the patient be healthy and well-formed, and, further, if menstrual molimina have been present—even although there may be no evidence of menstrual retention—under these circumstances, the attempt to make an artificial vagina could not be said to be absolutely unjustifiable. Until the uterus has been reached, it could not be said that menstruation, and consequently pregnancy, was quite out of the question. In making these remarks, I have in my mind a case respecting which I was consulted some time since, and in which I have reason to think that the formation of a vagina would be attended with advantage.

*Stricture or occlusion of the vagina.*—The stricture of the vagina, resulting from the contraction following mechanical injuries received during parturition, is often very difficult to remedy. The two methods of cure are by incision and subsequent dilatation, or by dilatation alone; and which of the two courses is preferable will be determined by a consideration of the nature of the case. Where the stricture is very firm, and at the same time limited in extent, an incision by a blunt-pointed bistoury at once restores the canal to its natural size, the opening being maintained by careful plugging of the vagina with oiled lint. The plugging must be persisted in for some days. In other cases, where the stricture affects a greater extent of surface, cutting may be less necessary, and the gradual dilatation by bougies may be preferable. Any tight bands encountered as the process of dilatation is being effected should be just touched with the edge of the knife to facilitate the dilatation.<sup>1</sup> In cases where labour super-

<sup>1</sup> Dr. Braxton Hicks has related some interesting cases of acquired stricture of the vagina. The plan pursued in treating these cases, and which proved very successful, was a combination of cutting and dilatation. (*Obst. Trans.* vol. iv.)



venes in these cases of stricture of the vagina, the foetal head forms a very efficient dilating body, but the dilatation often requires to be assisted by the careful use of the knife. Much time and patience will be necessary in some cases to restore the canal to its proper condition, owing to the great tendency of the cicatricial tissue to contract after being divided. Where cutting operations are performed strict antiseptic precautions are essential.

In cases where the stricture is congenital, there being, however, a minute opening, allowing of menstruation, but rendering intercourse difficult, the existing opening is to be sought for by means of the speculum, and enlarged by the knife, the canal being subsequently plugged with lint, to prevent adhesion of the cut surfaces.

*Simple narrowness of the vagina* will be best treated by careful employment of bougies, gradually increased in size until the canal is sufficiently large to admit of intercourse. Parturition is the great cure for this condition, and it is remarkable how easily an apparently very narrow vagina gives way, so as to allow of the passage of the large head of the foetus. Once fully dilated in this manner, the cure is complete.

Treatment of *obstruction due to the hymen*. In patients who have menstruated, the obstruction usually requires to be removed on account of its interference with the performance of sexual intercourse. The treatment of such cases is simple. The operator having carefully made out by examination the shape, size, and relations of the hymen, which, under these circumstances, may be found exceedingly dense, firm, and thick, makes three or four incisions radiating from the existing aperture, by means of scissors, in the obstructing membrane, care being taken not to involve the vaginal wall itself in the incision; it is recommended by some authorities that a circular piece be actually cut out, the whole hymen being thus removed. After the operation a piece of lint, rolled up in a cylindrical form and dipped in oil, should be carefully introduced. The tampon of lint should be so large as to slightly distend the canal and prevent the healing by the first intention. The lint will have to be removed, and a fresh piece inserted twice a day, for the next two days.

The treatment of cases of imperforate hymen, causing menstrual retention, has been already discussed (see p. 449).

## VAGINITIS.

Inflammation of the vaginal canal, in an acute form at least, is not a very common affection, although in cases of chronic inflammation of the uterus there is generally an increased vascularity of and secretion from the vaginal mucous membrane. Again, vaginitis is sometimes present in cases of gonorrhœa, but in the latter affection it is ordinarily the vulva or entrance of the vagina, rather than the vagina itself, which is the seat of the inflammatory action.

*Treatment.*—In cases where there is much heat, tenderness, and congestion of the vagina, leeches may be advantageously applied round the lips of the vulva; fomentations, by means of flannels wrung out of hot water or decoction of poppies, may be usefully employed after the bleeding, as a substitute for it in some instances. Hip-baths and injections of tepid or of quite cold water will be necessary, a stream of water being applied by the self-acting douche apparatus, described at p. 523. Other local applications may be required where the disease has assumed a chronic obstinate form. Scanzoni speaks highly of the employment of a cotton tampon, the surface of which is sprinkled with powdered alum, this being inserted in the vagina for a few hours every two or three days: the alum to be diluted with powdered sugar if the sensibility be considerable. Solution of nitrate of silver of varying strengths, according to circumstances, or the solid stick of caustic, may be also necessary. The general treatment is quite as important in the management of such cases as the local one. Rest, abstinence from intercourse, the horizontal posture, gentle aperients, food in moderate quantity, absence of excitement—all these are essential to the cure of the affection. When the patient has recovered, the principal cause which brought about the attack must be for the future avoided (see ‘General Treatment of Leucorrhœa,’ p. 520). The vaginitis associated with gonorrhœa requires a peculiar treatment. In the treatment of all cases of vaginitis, whatever be the cause, very great importance is to be attached to the observance of cleanliness: frequent ablutions should be employed.

ALTERATIONS OF SENSIBILITY OF THE VAGINAL CANAL, OR  
OSTIUM VAGINÆ.

*Spasm and hyperæsthesia: vaginismus.*—In making an examination by means of the finger, it may be found that the

entrance of the vagina is extraordinarily sensitive, the slightest touch giving rise to great discomfort; and in some cases this is so extreme that an examination is hardly practicable. This condition must not be confounded with tenderness to the touch of the more ordinary kind, which may proceed from inflammation or abscess of the vulva, from cancerous inflammation, from pelvic inflammation, gonorrhœal or syphilitic inflammations, etc., in most of which cases the tenderness is quite unlike that now under consideration. Nor must it be confounded with excessive sensitiveness of the uterus itself, such as is present in acute flexion of that organ (see 'Flexions'). The condition in question is really a hyperæsthesia of the part, dependent not always on the same cause. It has been described by various names. Marion Sims, Debout, and others, have of late years redirected attention to it, especially as a cause of sterility, and as interfering with sexual intercourse. The parts are more sensitive to a slight touch than to more rough handling. The extreme sensitiveness is mostly accompanied by a painful contraction of the vaginal sphincter—hence the terms 'vaginal spasm,' 'vaginismus,' which have been applied to it. The difficulty experienced in introducing the finger is dependent on the spasmodic contraction of the muscles. It has been described as most commonly present in individuals whose nervous system is generally in an easily excitable state. Dr. Ferguson believed that in cases of 'irritable uterus,' one of the seats of this neuralgic malady was the vagina itself, this latter being so exquisitely tender as to render intercourse intolerable. In Scanzoni's opinion, the disorder especially accompanies anteversions, retroversions, flexions, or actual changes of the uterus itself, and that it is not rare in connection with spasmodic affections of the urethra, bladder, or rectum. Sir J. Y. Simpson has in some instances found true small nodular neuromata under the mucous membrane.

The affection may not be due to the same cause in all cases. I am of opinion that the essence of the disorder is a local alteration or irritation of the nerves at the spot itself.

In one case which occurred under my own observation, the patient was a lady who had had two children; for some months there had been extreme sensibility of the ostium vaginæ, intercourse being impossible. On careful examination I found that the sensibility was actually limited to one little spot near the posterior commissure, over an area of less than one quarter of an inch. The case was cured by paring away the mucous membrane



over the spot, and bringing the edges together by fine silver sutures. Here it seemed probable that the hyperæsthesia was dependent on laceration and inflammation of some of the nerve fibres during labour. This hyperæsthesia is I believe not unfrequently due to partial laceration of the hymen. A very marked case of the kind recently came under my notice, when this was the evident cause. The slightest touch gave rise to expressions of great suffering, and intercourse had been found to be well-nigh impossible. Here the hymen was very thin, very easily stretched upwards by pressure, returning to its original shape on the pressure being withdrawn.

*Treatment.*—In the treatment of this affection, the first object in view should be to remove its cause. The condition of the vulva, of the vagina, and of the uterus, must be severally explored, and any disorder discovered rectified.

It is probable that if the cases were carefully examined, many would be found susceptible of the explanations mentioned above, and therefore capable of being similarly treated, namely, by removal of the affected portion of mucous membrane by the knife, or obliteration of the sensitive part. Other cases may be cured by rather freely incising the mucous membrane at the situation of the hymen, and carefully packing the passage with oiled lint so as to prevent adhesions, subsequently employing occasionally a dilator to maintain the aperture the proper size. Marion Sims<sup>1</sup> has recommended a glass speculum to be kept in the passage to prevent adhesions: this dilator to be worn for some little time. Scanzoni recommends two or three weeks' dilatation, to be effected by a series of graduated glass specula, used for half an hour to an hour at a time every two or three days; and afterwards avoidance of intercourse, hot hip baths, and applications of belladonna.

In cases where no limited local derangement can be detected the general treatment is a matter of great moment. Regular, temperate living, exercise in the open air—especially horse exercise—use of the sponge-bath, friction of the skin, cultivation of the bodily rather than of the mental powers, these measures are not subsidiary, but of primary importance in the treatment, and the patient cannot be fully restored to health if these simple precautions be neglected.

<sup>1</sup> *Obst. Trans.* vol. iii.

## FISTULÆ.

There may be an abnormal communication between the bladder and the vagina, *vesico-vaginal fistula*, the aperture varying much in size and in shape. In some cases the whole of the base of the bladder may be destroyed, or this together with the urethra. The perforation is generally an effect of the long pressure of the head during labour. In some rare cases a communication has been found between the bladder and the cervix of the uterus (*utero-vesical fistula*). Lastly, we have cases in which there is a perforation of the vagino-rectal septum. These are cases of *recto-vaginal fistula*.

Great misery and distress are produced by the presence of these unnatural openings, and although in themselves not grave, they are most troublesome and annoying to the patient.

**TREATMENT OF VESICO-VAGINAL FISTULA.**—There is no department of surgery in which such marked improvement has been made of late years as in the treatment of this, which is the most common of the fistulæ connected with the generative organs. Cases of vesico-vaginal fistula are now, almost without exception, capable of cure, though great perseverance and patience are requisite in many cases to obtain success. To Dr. Marion Sims is due the merit of introducing the use of metallic sutures instead of sutures of thread or silk, which were formerly used, for the purpose of bringing the edges of the wound together, and of an improved speculum, by which latter instrument access is better obtained to the part involved, and the manipulations thus greatly facilitated. Mr. Gossett of London in 1834 published a case illustrative of the advantages of metallic sutures, but his practice never attracted attention, or led to its adoption by other individuals. Since Dr. Marion Sims introduced the use of the ‘silver suture,’ other modifications of the operation, the use of clamps, buttons, bars, etc., as assisting in holding the edges of the wound together, have been adopted, but latterly they have been found superfluous, and it appears that the really important part of the improved operation is the greater nicety with which the edges of the fistulous opening can now be pared, and the newly cut surfaces kept in close apposition. The sutures now employed are generally of wire, but some operators prefer silk.

The operation, as now practised by several distinguished physicians and surgeons, is essentially the same, particular points

being more insisted on by some than by others. The most complete work on the subject is Dr. Emmet's,<sup>1</sup> in which are recounted a large number of cases, many of them of great difficulty. Dr. Emmet attaches much importance to the preparatory treatment, consisting in many instances of preparatory operations, the object of which is to free the soft parts which have to be pared from cicatricial adhesions by bands, which bands prevent the pared edges from coming together properly. To the method of performing these preparatory operations Dr. Emmet attaches much importance. Cicatricial bands or resisting strictures are to be cut through by scissors instead of the knife, for the reason that the cut of the scissors heals more slowly. There is also less risk of pyæmia. The cutting asunder of these interfering bands may frequently be done at the time of the actual operation, the fistula closing before the wounds inflicted by the side of the fistula have had time to granulate and contract. But the wearing for some days of a glass speculum after cutting through the adhesions and bands is frequently advisable, as in this way previously contracted surfaces are permanently lengthened. Dr. Emmet also insists on the use of baths, injections, etc., for producing a healthy condition of the mucous membrane. Some days may have to be spent in this preparatory treatment. Dr. Emmet's recommendations are most useful and practical. He uses scissors of various curves for paring the edges. In the work of Dr. Savage also will be found very concise directions for the operations, with drawings of the various instruments required. Before the operation the bowels must be thoroughly evacuated. For the operation itself, the patient is placed on the back, as in the operation of lithotomy, on the side, with the body partially pronated, or on the hands and knees. The two former methods allow of an anæsthetic being easily given; the latter method is the best in difficult cases. The fistula is exposed by simply separating the labia by the fingers, and retracting the perinæum by Sims's duck-bill speculum. The edges of the fistula are next pared by knives or by scissors adapted for the purpose. These require to be bent at different angles and curves so as to reach easily all parts of the circular space constituting the fistula; as regards the manner in which the paring is effected, the edges should be bevelled, the operator removing thus the mucous coat of the vagina and the muscular tissue of the bladder, but not the mucous lining of the bladder.

<sup>1</sup> *Vesico-Vaginal Fistula*, 8vo, p. 250. Wood & Co., New York, 1868.



The effect of this is that the amount of raw surface offered for adhesion when the lips are brought together is increased. Every part of the border of the fistula must be pared. The paring effected, a series of interrupted sutures are introduced; they pass from a quarter of an inch outside the edge of the wound, through the thickness of the muscular coat of the bladder, close to the edge of the cut surface, stopping just short of the mucous membrane; the same on each side. Avoidance of the mucous coat of the bladder is a point insisted on by all. The number of the sutures varies according to the size of the opening, but it is a point much insisted on by Dr. Marion Sims, that they should be numerous and close together. The sutures first used have been generally of silk. When these temporary silk sutures have been all introduced, the ends, which are hanging free, are used to draw through the silver wire permanent sutures. The edges of the wound are then carefully brought together by tightening the sutures one after the other; the ends of the wire sutures are then twisted up close to the edge by the fingers or by forceps, and the wire is then cut off close to the edge of the wound.

In the performance of the operation, care is required to avoid the ureters; and when the fistula is situated high up, great care and an intimate acquaintance on the part of the operator with the anatomy of the parts are essential.

The after-treatment requires special attention. The patient is placed on the side in bed, where she must remain for some days. Accumulation of urine in the bladder is generally prevented by keeping a catheter in the bladder, through which the urine escapes, as fast as it enters this cavity, into an indiarubber bag placed outside; or, still better, by an indiarubber pipe, to a suitable receptacle beneath. The catheter used is of a sigmoid form; the best is one of flexible metal, which is self-retaining. The catheter should be changed night and morning, cleaned carefully before reintroduction, and carefully watched to see that it does not become obstructed. Some operators, as Dr. Meadows, omit this continued use of the catheter altogether, and it is stated that the cases do equally well. The bowels are prevented from acting for a period of ten days or a fortnight, small doses of opium being given periodically for this purpose. The sutures are removed about the tenth day. In removing the sutures, each separate stitch is slightly retracted by the forceps, and then cut across on one side by means of sharp scissors.

When the base of the bladder is entirely gone, it is necessary to close the vagina completely, the patient afterwards menstruating through the bladder.

If the fistulous communication between the bladder and vagina be due to cancerous ulceration or to syphilitic ulceration still progressing, operative measures are quite inapplicable.

The instruments required for the operation must be specially constructed for the purpose. For preparatory operations long, blunt-pointed, slightly curved scissors, and the glass plug. For the operation itself the duck-bill speculum in various sizes, or metallic, slightly flexible retractors; tenaculi with long handles, fine points, and slightly hooked in shape at the end; a blunt hook of copper, plated, to act as a probe and otherwise. Scissors (following Emmet's plan) of various curves, right and left, so as to enable the operator to pass all round the fistula, or knives with short blades set on long handles at various angles, or one knife set on a universal ball-socket joint. Short needles to carry silk, of various curves, a holder to insert the needles, or Sims's self-feeding wire-carrying set of curved needles, with handle before mentioned, may be employed instead of these silk-carrying needles. Sponge holders with long handles, and furnished each with a minute piece of sponge. A pair of long dressing forceps. Forceps with strong flattened points to twist the sutures; silver wire of various thicknesses. Sims's 'shield' of copper, plated, which enables the operator to steady the fistula and tighten the sutures. Catheters. Delineations of these various instruments will be found in Dr. Emmet's, Dr. Savage's, and other works.

#### TREATMENT OF RECTO-VAGINAL FISTULA.

These cases do not, as a rule, present the same difficulty in regard to treatment as cases of vesico-vaginal fistula: they are capable of being treated on precisely identical principles. The application of caustic is frequently sufficient to produce closure of the aperture. Careful paring of the edges, and use of metallic sutures, can be had recourse to, if other more simple measures fail. The treatment after the operation chiefly consists in keeping the bowels confined, by means of opium, for some days. Fistula due to cancerous ulcerations are not remediable by operation.

For the relief of vesico-uterine fistula, the operation of closing

the os uteri and allowing the patient to menstruate through the bladder has been practised. It is perhaps the least of the two evils to leave the patient thus. Mr. James Lane records a most curious case, in which, notwithstanding closure of the os by operation, the patient became pregnant. Probably the closure was not complete. Various interesting and unusual cases will be found in Dr. Emmet's work.

#### TUMOURS GROWING IN OR FROM WALLS OF VAGINA.

*Fibroid tumours* are sometimes met with in the wall of the vagina. Thus Sir J. Paget<sup>1</sup> removed by enucleation a hard fibrous tumour, the size of a hen's egg, from the wall of the vagina in front of the os uteri, which had been the cause of profuse losses of blood; and occasionally small growths of a similar nature are found more external to the vagina near the uterus. Again, we have the *fibroid polypus* of the vagina, attached by a pedicle, and hanging freely in the vaginal canal, and the *mucous polypus* of the vagina. These cases are rare.

*Fatty tumours* growing between the rectum and vagina have been met with.<sup>2</sup>

*Cancer of the vagina* presents itself in two forms. We find in some cases cauliflower-like growths on the free surface, generally in association with like growths on the cervix uteri. In others the vaginal wall is found in a thickened, hard, irregular, nodular condition. Any part of the vaginal wall may be affected. Vesico-vaginal fistula is often a result of ulceration of a cancerous deposit in the roof of the vagina.

**TREATMENT OF TUMOURS GROWING IN OR FROM THE VAGINAL WALLS.**—The fibrous tumours growing in the vaginal wall, or hanging by a pedicle from any part of the same, are only amenable to surgical treatment. They interfere with coition, and require removal. The polypoid tumours are best removed by the *écraseur*. If near the bladder, care should be taken not to wound this viscus in removing the tumour. A more careful operation by the knife or scissors is required when it is decided to remove a tumour which is larger, and has a wider basis of attachment.

<sup>1</sup> *Med. Times and Gaz.* Aug. 17, 1861.

<sup>2</sup> See Dr. D. D. Davis's work, vol. i. p. 137. In the works of Dr. West and Dr. McClintock also will be found related cases of the somewhat rare affections above described.



The cystic tumours of the vagina, if pedunculated, are treated by excision. When this is not the case, the cyst may be tapped and injected, or the cyst may be dissected from its attachments, if not of considerable size. The latter plan is, on the whole, the best, as the cyst will refill subsequently, when simply tapped.

In the treatment of cancerous tumours of the vagina, the same rules are applicable as in cases of cancer of the uterus.

## CHAPTER LII.

## DISEASES OF THE URETHRA AND BLADDER.

## DIAGNOSIS.

DISORDERS of MICTURITION considered in Relation to the Diagnosis of their Causes.

DISEASES of the Urethra and Bladder—Chronic Inflammation of Urethra—Treatment—Stricture of Urethra—Treatment—Vascular Tumours of Meatus—Treatment—Eversion of Urethra and Bladder—Treatment—Retention of Urine—Use of Catheter—Chronic Cystitis—Treatment—Polypus of Bladder.

## DIAGNOSIS.

THE disorders of the bladder and urethra are numerous, and occasionally very serious in their results. Their diagnosis is, though really simple, often attended with difficulty, for the reason that the symptoms are not unfrequently of a very misleading character.

The physical exploration of the urethra and bladder is easy. The urethral orifice can be readily seen, the canal can be easily explored by means of a sound or a catheter, and its patency or otherwise tested. The bladder can be explored by the finger from the vagina in such a way as to test its thickness and density and the presence of foreign bodies—*e.g.* calculi—within it. The bladder can also be accurately explored from within by means of the sound or the catheter.

In case of obscurity of diagnosis these several methods of examination should be had recourse to. Very easily recognisable and important conditions not unfrequently exist unknown for a long time in consequence of omission of such examinations.

The *disorders of micturition* constitute the most important of the *symptoms* of diseases of the bladder and urethra. We proceed to consider these symptoms.

## MICTURITION DIFFICULT (DYSURIA).

Pain is readily confounded with difficulty, and *vice versâ*.

Difficulty in micturition proceeds from one or two causes:

either the bladder is incapable of expelling its contents ; or, the exit of urine is prevented by some abnormal condition of the urethra.

The *bladder is inefficient* when its muscular fibres are paralysed, or, which amounts to the same thing, when they do not act. *Paralysis of the walls of the bladder*, in this sense of the term, is not a common affection ; it is witnessed in the last stage of low fever—in puerperal fever, *e.g.*—and it may be the result of long-continued distension of the viscus, whereby the muscular fibres have their contractility destroyed or lessened, as during parturition.

The cause of the difficult micturition in cases of this kind would be tolerably apparent, except when the paralysis extended to the sphincter also, when the constant dribbling away of urine would render the distended condition of the bladder less obvious. Some years ago I saw a case of retention of this kind on the second day after labour. The bladder was very full, but the slight occasional escape of urine very nearly obscured the real state of the case. Cases of a more chronic nature sometimes present themselves : the bladder is largely distended, simulating abdominal tumour, and yet, the escape of urine being tolerably regular, attention is not called to the condition of the bladder itself. Lamentable results have followed under such circumstances from the want of a correct diagnosis. In cases of paraplegia, there is paralysis of the walls of the bladder, which, however, is more often present towards the close of the affection, the paralysis at first extending, in a marked degree, only to the sphincter. Chronic cases of paralysis of the bladder are characterised by the offensive condition of the urine, due chiefly to partial constant retention of the secretion within this organ.

In cases of *organic disease of the bladder—cancer, e.g.*—there is frequently difficult micturition accompanied with bloody urine ; micturition is also both frequent and painful. In another more rare disease of the bladder, viz. *polypus*, the urine may be prevented by the polypus from escaping into the urethra.

*Organic stricture of the female urethra.*—In cases where the difficult micturition is due to this cause, the difficulty is more or less persistent, though liable to exacerbations ; the bladder is evacuated slowly, the stream is small, pain is at times present, and the difficulty, as a rule, slowly increases as time advances. The history of the case might be of some assistance in the diagnosis ; but an examination is of course essential. *Vascular*



*tumour of the urethra, or polypus of the urethra*, may be the cause of difficult and painful micturition. In the case of polypus of the urethra, there is difficulty and straining in micturition, and there may be occasional passing of blood. *Cysts or other tumours of the vagina*, if growing near the urethra or neck of the bladder, may produce difficult micturition. *Inversion of the bladder*.—This rare condition will be mentioned further on, in connection with ‘painful’ micturition, but it also occasions ‘difficulty.’

*Displacements of the uterus*.—Connected as the neck of the bladder is with the uterus, dislocations of the latter involve a certain amount of displacement of the former. *Retroflexion or*

FIG. 202.



*retroversion of the uterus*, and especially of the *gravid uterus*, produces difficult micturition in a marked degree. The bladder is emptied with great difficulty in such cases; the urethra, as shown in the annexed drawing (fig. 202), is thrust upwards behind the pubes, elongated, stretched, and pressed upon posteriorly by the uterine tumour. In early pregnancy, difficult micturition, persisting for some time and increasing, would lead us to suspect retroflexion or retroversion to be present—an important fact, for, in order to treat these cases satisfactorily, the early recognition of their true nature is necessary. The other signs of retroversion of the gravid uterus are, flattening of the hypogastric region,

involuntary straining or tenesmus, dragging in the loins and groins, constipation, etc.

*Enlargement of the uterus*, from the presence of *fibrous or other tumours*, may also produce difficult micturition; indeed, this symptom is very commonly observed in various stages of this affection. In cases of fibrous tumour of the uterus, a curious phenomenon is sometimes observed, not, probably, peculiar to these tumours, namely, the manner in which ability to evacuate the bladder is affected by the position of the body. Thus, a lady who consulted me had had a large fibrous tumour of the uterus for seven years. Of late there had been occasional difficulty in micturition, which she had always been able to overcome by lying flat on the face. Here the uterine tumour was movable, and when the patient threw the body forwards the pressure of the uterine tumour was removed from the vesical outlet. Sir C. M. Clarke records a case in which the patient was capable of voiding small quantities occasionally if she lay on the back with the pelvis a little raised.<sup>1</sup>

During the descent of the foetal head through the pelvis in labour, there is difficult micturition, the canal of the urethra being partially or completely occluded by pressure.

In *prolapsus of the bladder* (cystocele) the same symptom is observed; the position of the urethra is here precisely the opposite to that in retroflexion of the uterus, the canal being bent downwards instead of upwards. In these cases of cystocele the patient evacuates the bladder by simply pushing the tumour upwards; this restores the urethral canal nearly to its normal position.

*Tumours of the ovaries*, as long as they remain in the pelvis, frequently occasion great difficulty in micturition; when, in process of growth, they rise above the pelvic brim, the pressure on the urethra is removed, and, so far as the symptom now alluded to is concerned, the patient improves.

In short, difficult micturition may be caused by any tumour in the pelvis capable of exerting pressure on the canal through which the contents of the bladder are evacuated. It is characteristic of most of those cases in which the difficulty of micturition depends on pressure by tumours, etc., within the pelvis, that the difficulty is more or less chronic, and will be found on inquiry to have lasted for some time, unless in cases where the pelvic tumour is of very rapid growth. An instance of the latter exceptional kind we have

<sup>1</sup> *Op. cit.* p. 254.

in cases of *peri-uterine hæmatocele*, where blood rapidly effused in the neighbourhood of the uterus forms a considerable tumour, and, in consequence, gives rise to difficult micturition.

#### MICTURITION PAINFUL.

Here pain, during or in consequence of micturition, is the prominent symptom. There may be difficulty; but the pain attending it is the circumstance chiefly attracting attention.

Micturition may be painful by reason of *abnormal conditions of the urine itself, of the bladder, of the urethra, of the vaginal mucous membrane*, or in consequence of *dislocations* produced by affections of other adjacent organs.

*Urine*.—The morbid conditions of the urine alluded to are undue acidity or alkalinity, presence of gravel, mixture of the urine with blood, in cases of Bright's disease, in cases of calculus of the kidney, cancer of the bladder, or from any other cause. If the urine be of an irritating quality, it often produces excoriation of the vaginal outlet.

*Bladder*.—Cystitis, chronic or acute, is accompanied with pain during micturition, and there is often a great degree of frequency present at the same time. In these cases of cystitis, pain is present more or less constantly, as well as during the passage of the urine from the bladder. Cystitis itself may arise from the presence of a stone in the bladder, or from partial or complete retention of urine. In cases of calculus, there is pain on motion and at variable times; the pain during micturition is not considerable, as a rule, but there is generally pain just at the end of the process. The painful micturition in cystitis depends either on the condition of the urine, which is often very irritating, or on the associated inflammation of the urethra.

In *malignant disease of the bladder*, the pain following micturition is a marked symptom, but it is associated with pain at other times also, with frequency of micturition, with turbidity of the urine, occasional presence of blood, etc. The disease in question is rare; the affection with which it would be most liable to be confounded is organic disease of the kidneys. To settle the point, an examination of the bladder would be necessary.

*Urethra*.—Painful micturition is, in the majority of cases, dependent on morbid conditions of the urethra. In urethritis, whether of specific character or not, there is pain of a burning character (scalding, as it has been appropriately termed), which



is more or less constant; but during the passage of the urine it is very intense: micturition is not only painful but very frequent. The suddenness of such an attack is, as a rule, characteristic of the presence of an inflammatory condition of the urethra. The symptoms present in inflammation of the urethra of a specific nature—*i.e.* produced by the gonorrhœal virus—are not, however, always characteristic. There is generally great pain in micturition; this pain is of a burning character, and is associated often with a spasmodic contracted state of the sphincter, to which the pain experienced is partly attributable. The presence of an urethral discharge, and the moral evidence attainable, would assist us in coming to a conclusion (see p. 515). In cases of gonorrhœal inflammation of the urethra, the stage of acutely painful micturition does not extend usually beyond two or three days; it attends the outset of the inflammation, but is less marked subsequently. We also find inflammatory conditions of the urethra as the result of mechanical injury, as from masturbation, too frequent or violent sexual intercourse; or the inflammation may be the result of vesical irritation, as in cystitis or calculus.

An obstinate form of chronic urethritis, unconnected with gonorrhœa, has been noticed by Dr. Ashwell and by Dr. M'Clintock, as giving rise amongst other symptoms to painful and very frequent micturition. There is pain also irrespective of micturition, and pain is produced by passing a catheter. The condition appears to be a chronic inflammation of the mucous membrane lining the whole of the canal.

*In cases of vascular tumour of the meatus* the pain present is, as a rule, very severe, so considerable indeed that the patient dreads the process of evacuating the bladder. Painful micturition, extending over a considerable time, in a middle-aged woman, should lead us to suspect the presence of this affection. Examination of the meatus would then be necessary. In children, *eversion of the mucous membrane of the urethra, or inversion of the bladder itself* is in some rare instances a cause of difficulty and pain in micturition.

Another class of cases of painful micturition is that in which the bladder and urethra are unaffected, but, the *ostium vaginæ* being in an inflamed condition, the passage of urine is productive of pain from the contact of the latter with the inflamed surface. Certain forms of leucorrhœa are associated with painful micturition, in consequence of the existence of this inflammatory condition of the outlet of the vagina. When the upper and inner part of the

thighs are excoriated by contact with irritating discharges, such as are present in the ulcerative stage of cancerous disease of the uterus, and under some other circumstances, the patient will lead us to infer that there is painful micturition, the pain arising in the latter case also from contact of the urine with a raw inflamed surface. The immediate neighbourhood of the outlet of the urinary meatus may be inflamed as the result of masturbation.

*Alterations in the position of the uterus*, by which the urethra is drawn out of its place, alterations of the bladder itself, or tumour of adjacent organs, may produce difficulty in micturition, as already pointed out. The difficulty is generally accompanied with more or less pain; but the pain is not, as a rule, the prominent symptom, though it may be so in a few exceptional cases. With a little care in cross-examination, it may generally be made out whether the pain or the difficulty came first in order; and this point is of importance in reference to the diagnosis.

#### MICTURITION FREQUENT.

There is, perhaps, no one diseased condition of the vagina, uterus, bladder, or adjacent organs, which may not, at one time or other, give rise to frequency of micturition, to say nothing of the varying conditions of the urine which may occasion the same phenomenon. Frequency of micturition can hardly, then, be considered as characteristic of the presence of any one diseased or altered condition.

Frequent micturition is often an early sign of pregnancy. During the first two months of gestation in primiparæ it is very generally present. Towards the latter end of pregnancy, also, it is pretty frequently observed. In hysteria, frequent micturition is a symptom often present during the attacks.

*Displacements of the uterus* may occasion frequent micturition; anteflexion of the uterus almost invariably produces great frequency of micturition; difficulty and pain during micturition may also be produced thereby. *Ovarian* or other pelvic tumours occasion frequent micturition, owing to pressure on the bladder, as before remarked. Urinary difficulties are more frequently present during the early than the later stages of these tumours; when larger, they rise out of the pelvis, and the patient suffers less. Frequent micturition may be due to *retroflexion of the gravid uterus*. There may be difficulty alone, but more generally difficulty and frequency of micturition are noticed; the latter may

alone be observed. *Organic affections* of the uterus, as cancer, fibroid tumour, polypus uteri, or simple hypertrophy, or an inflammatory or hyperæsthetic condition of the organ, may, each of them, give rise to frequent micturition. Pressure on the bladder, and consequent frequent micturition, may be produced by abscess in the cellular tissue between the bladder and vagina, or by effusion of blood into the peritoneal cavity around the uterus in peri-uterine hæmatoecle.

*Dysmenorrhœa* is often associated with frequent micturition; the tenesmus of the uterus extends to the bladder.

*Certain conditions of the bladder itself* may give rise to frequent micturition. *Calculus of the bladder, cystitis, cancerous disease of the organ*, the condition known as the '*irritable bladder*,' occasion this symptom, which is, moreover, observed in the early stage of the affections in question. The *presence of blood in the urine* occasions frequent micturition, as do also *various disordered conditions of the urine*. *Irritation propagated from the kidneys*, when these organs are diseased, or *from the rectum*, as when *hæmorrhoids* are present, may occasion frequency of micturition. Cases in which hæmorrhoids have to do with disturbances of the function of the bladder not seldom remain for some time obscure.

*Inflammation of the urethra*, as in gonorrhœa, or occurring irrespective of gonorrhœa, is a cause of frequent micturition: the urine is then passed in drops, with scalding pain. *Vascular tumour* of the meatus occasions frequency of micturition, distinguished from inflammatory conditions by the long duration of this symptom in the former case.

#### MICTURITION INVOLUNTARY.

The conditions under which this symptom may be observed are the following.

*Fistulæ in the vesico-vaginal septum*.—In such cases, the patient has hardly the slightest control over the evacuation of the bladder, the urine escaping by the unnatural opening as fast as it is secreted. The formation of these fistulæ is generally connected with the act of parturition; but *syphilitic* or *cancerous* ulceration may be the source of the evil. If the existence of fistula be suspected, the vagina and the bladder must be carefully examined.

There are cases on record in which involuntary micturition was



produced by the existence of a *vesico-uterine fistula*. Here the symptoms are very peculiar, but the nature of the case would be easily recognisable on careful study of its history, combined with examination of the vagina. If the urine were seen issuing from the os uteri, this would conclusively determine the question.<sup>1</sup>

At the latter part of *pregnancy* micturition is often involuntary.

*Retroflexion of the gravid uterus* may occasion great distension of the bladder; and not unfrequently a case of this kind comes before us in this form: The patient complains of involuntary micturition; and, on examination, it is found that the condition really present is one of *retention of urine*, produced by retroflexion; small quantities from time to time escaping, owing to the extreme distension of the bladder. The period of pregnancy at which this distension of the bladder most commonly occurs is the fourth month. The distension of the bladder was supposed by William Hunter to be the cause of the dislocation of the uterus. Dr. Tyler Smith first pointed out that the retroversion (in many cases, at all events) is the primary evil; the fact being, that the retroversion existed before the pregnancy occurred.<sup>2</sup>

When the bladder is paralysed partially or entirely, as in the course of fevers, etc., great distension of the organ and *overflow* may occur, as in the case of retroflexion just noticed.

*After parturition* there is often involuntary micturition for a few days, which may extend to weeks or even longer. The muscular structure of the urethra has in such cases undergone undue pressure and injury during the act of parturition. In women who have large families, the neck of the bladder occasionally becomes thus permanently weakened, and the control over the bladder is subsequently always imperfect.

*Tumours of the ovaries* now and then produce involuntary micturition; the tumour drags on the bladder, and mechanically interferes with the action of the sphincter.

*Great hypertrophy of the nymphæ* was a cause of incontinence of urine in a case recorded by Breslau.<sup>3</sup> Owing to the traction of the enlarged nymphæ, the action of the sphincter was interfered with.

*Cicatrization of the vaginal canal*, after parturition, was the

<sup>1</sup> A most interesting case of this kind is related by Dr. Leishman, in the *Glasgow Medical Journal*, October 1861. The patient in this instance could only retain urine within the bladder when lying on the side.

<sup>2</sup> *Obst. Trans.*, vol. ii.

<sup>3</sup> Scanzoni's *Beiträge für Geburtsh.* 1358.

cause of involuntary micturition in a case under my care at University College Hospital. Here it was supposed for some time that there was a fistula high up. The cutting through the cicatrices necessary to explore the upper part of the vagina led to the discovery that there was no fistula, and to the cure.

*Cancer of the uterus* may extend to the neck of the bladder, and give rise to involuntary micturition, due then to ulceration of the under portion of the urethral canal, or of the bladder itself.

*Congenital* defect of power over the sphincter of the bladder is very rare, but the possibility of its existence should not be forgotten. Congenital incontinence of urine may be due to *imperfect formation of the urethral canal associated with epispadias*, of which a very interesting case is recorded by Dr. Röser.<sup>1</sup> The case was that of a young woman, aged 18, who had an incontinence from birth. The clitoris consisted of two parts; the upper and anterior portions of the orifice of the urethra were wanting, and the orifice itself was very large. A cure was obtained by bringing the separated halves of the clitoris together by a plastic operation.

*Micturition impossible*.—In cases where the patient is absolutely unable to pass urine, it is evident that there is either an impediment to the escape of the urine from the bladder, or that there is no secretion from the kidneys. In other words, the case is one of *retention* or of *suppression of urine*. In the distinction of these two conditions, it is to be remarked that retention is, as a rule, accompanied by a desire to evacuate the bladder, which is for the most part absent in cases of suppression: the exception is noticed in cases of paralysis of the lower extremities, and some other instances where there is *sensational* as well as *motor* paralysis. Cases are rare in which there is a possibility of taking suppression for retention; but it might prove a dangerous mistake, and it is one more within the limits of possibility, to overlook retention, and set down the condition as one of suppression. Such cases occur in connection with the presence of diseases producing great prostration, fevers being the chief of these. The patient may for a considerable time have no evacuation from the bladder; and, this circumstance escaping attention, the bladder is allowed to go on increasing in size. The obscurity of the case is often increased by the fact (previously alluded to) of a small quantity of urine escaping from time to time from the distended organ,

<sup>1</sup> *Würt. Corr. Bl.* 1861, and Schmidt's *Jahrb.* vol. cxii. p. 47.

and retention all the while persisting to a dangerous degree. The fact that the patient has expressed no desire to evacuate the bladder must be disregarded; and, after a certain time has elapsed, an examination should be made, in order to ascertain whether the condition present is one of retention or suppression. A case is related by L. Vandeweren,<sup>1</sup> in which a woman believed to be dropsical died from the effects of rupture of the bladder due to retention. The definitive decision between retention and suppression depends, then, upon the results of examination.

After labour the bladder is not seldom left distended for too long a time, owing to the patient experiencing no desire to evacuate it.

Cases in which retention is combined with involuntary micturition have been already disposed of.

*Retention* produced by inability to evacuate the bladder, coupled with distress and strong desire for the same, may arise from mechanical pressure on the neck of the bladder, of whatever kind. *Fibroid* tumours of the uterine wall, enlargement of the uterus by fluid, rarely, *ovarian tumours*, etc. *Retroflexion of the uterus*, or *retroversion* of this organ, when suddenly produced, may also cause retention, which either supervenes suddenly, or is not detected for a long time in consequence of partial escape of the contents of the bladder occasionally taking place. In cases of *prolapsus of the uterus*, retention may occur during the catamenial periods, when the organ is larger and heavier, and in cases of prolapsus of the bladder itself, chronic inversion of the uterus, etc.

Another form of retention, not by any means uncommonly observed, is that witnessed in *hysterical* patients. Retention from this cause is accompanied with a good deal of acute pain in the hypogastrium. The attack is of a more acute character than in the cases before considered. There is generally a history of previous attacks of a similar character. In many cases, the nature and cause of the presumed retention cannot be made out without an examination.

Lastly, there are cases in which no urine is passed because there is none in the bladder. I lately saw a case in which the ureters were occluded by cancer of the base of the bladder, and no urine could pass into the bladder. This kind of *suppression* has been known to be produced by pressure of large ovarian or other

<sup>1</sup> Larbaud, *Recherches sur le Catarrhe la Faiblesse et la Paralysie de la Vessie*, p. 68.



tumours on the ureters. More ordinarily, however, suppression in the true sense of the word is due to other causes, the consideration of which does not come within the scope of the present inquiry.

#### CHRONIC INFLAMMATION OF THE URETHRA.

The canal itself is in an abnormal condition: it presents to the finger a hard thickened cord, which may or may not be tender to the touch; the introduction of the catheter may be attended with much pain. In many cases we have urethritis as a consequence of *gonorrhœal* infection; there is in such cases redness and tenderness, and there is a puriform discharge from the urethra, scalding pain during micturition, and bloody urine. The gonorrhœal inflammation of the urethra continuing a long time, we find occasionally further effects, viz. production of a hard, thick condition of the urethra, such as that above described; and, apart from a careful scrutiny of the history of the case, there may be nothing to indicate whether the chronic urethritis present be of gonorrhœal origin or not. Frequency and pain in micturition, slight discharge, pain during sexual intercourse—these are the symptoms usually present in these cases.

*Treatment.*—The treatment of chronic urethritis consists in rest, the use of the tepid hip-bath, avoidance of all sources of irritation, observance of cleanliness, use of astringent lotions, or injection of weak solutions of alum or sulphate of zinc into the urethra itself. Such treatment will be sufficient in simple cases. Of internal remedies copaiba is undoubtedly the most effectual, and it may be recommended to be given in conjunction with application of the other remedial measures mentioned, in all cases, and whether suspected to be of gonorrhœal nature or not. The disease is undoubtedly a difficult one to cure; especially is this the case where a thickened condition of the urethra is present. Great patience is generally required in order to bring the case to a successful issue. The application of nitrate of silver, powdered and diluted with sugar, or in solution, is sometimes necessary, especially in cases where the mucous membrane of the urethra is ulcerated.

#### STRICTURE OF THE URETHRA.

This is a condition very rarely met with in women. It necessarily occasions difficulty in micturition. By introducing a probe into the canal, the presence of an obstruction is readily recognised.

It is generally traceable to the effects of mechanical injury, as from the pressure of the foetal head, contusions from instruments during labour, accidental injuries from without, contraction following syphilitic ulceration, or to chronic inflammation associated with gonorrhœa. Sir Henry Thompson<sup>1</sup> gives an account of the few cases of stricture of the female urethra which have been placed on record by others or observed by himself. He confirms the observations of previous authors that the obstruction is usually met with close to the external orifice of the urethral canal. It may affect the canal for a variable distance.

*Treatment.*—‘In the management of the organic contractions of the urethra,’ says Sir Henry Thompson, ‘the use of dilatation, assisted, when necessary, by a division of the opposing part, . . . will generally be sufficient for their removal.’ The shortness of the canal, and its great accessibility, should render operative measures easy of application.

#### VASCULAR TUMOUR OF THE URETHRA.

The tumour is an excrescence, bright red in colour, which grows just within the external orifice of the urethra, varying in size from a pin’s head to a hazel-nut. It is usually more or less pediculated, and the pedicle may have a length, as I have myself seen, of a quarter of an inch. It consists of an hypertrophy of the mucous papillæ of the part, and the shape and appearance give one the idea of a vegetation growing on the mucous membrane. The tumour may be single or partially divided. The best account of the intimate structure of the tumour was given by Mr. Burford Norman, in the ‘London Journal of Medicine,’ Feb. 1852. The growth is usually possessed of an extreme degree of sensitiveness. The symptoms produced are occasionally very severe, their intensity being out of all proportion to the size of the tumour. The chief symptoms are difficulty, pain, and frequency of micturition, pain in intercourse, pain on walking, etc. The most constant sign is pain immediately after passing water, whilst the last few drops are escaping from the bladder. These tumours may give rise secondarily to several other symptoms, and in some cases the symptoms are so indefinite that the diagnosis remains for a long time obscure, more especially in cases where modesty induces the patient to refrain from giving such an explicit account of her

<sup>1</sup> *The Pathology and Treatment of Stricture of the Urethra.* The Jacksonian Prize for the year 1852. London: Churchill. 2nd ed. pp. 379 *et seq.*

symptoms to the medical attendant as to lead him to make an examination.

*Treatment.*—The tumour is best treated by carefully dissecting it off from the surface to which it is attached by means of a small scalpel, or scissors, and applying strong nitric acid lightly to the cut surface. If a difficulty is experienced in seizing it with the forceps, Dr. M'Clintock's plan of catching it in a loop of thread forming a kind of snare, may be adopted. Other methods of treatment, such as cauterisation with nitrate of silver, require a longer time, and are less satisfactory. There is hardly any affection to which women are liable which causes more uneasiness and discomfort, or which is removed more easily. Warty vegetations are sometimes observed growing just outside the meatus. In some cases of this kind which came under my own notice the affection gave rise to very painful pruritus; in others a large crop of warty growths situated in this position had given rise to considerable difficulty and pain on intercourse, and it was found that, in this latter case, the growths were of syphilitic origin. In these cases removal by means of the knife was the treatment adopted.

#### EVERSION OF THE MUCOUS MEMBRANE OF THE URETHRA

has been noted by Lisfranc, M'Clintock,<sup>1</sup> and others. In such cases, a tumour of variable size, of a reddish, a dark red, or pale red colour, may occupy the position of the urethral aperture. It is easily distinguished from vascular tumour on attentive examination of the relations of the growth, and by the use of the catheter; and unless inflamed and very painful, it is capable of being pushed back and reduced.

*Eversion of the bladder* is sometimes observed in very young children. It occurs in infants, probably in the same class of cases as those in which eversion of the rectum is noticed, and from a like cause—viz. violent straining during coughing, or possibly in the dysuria due to presence of ascarides. Dr. M'Clintock refers to a case observed by Dr. Beatty of Dublin, in a child nearly two years old. The tumour was scarlet, the size of a chestnut, very painful. It was replaced by pressure, and the urethra found to be very large. Mr. Crosse of Norwich had related a precisely similar case in a child about the same age, and which was at first considered to be a vascular tumour of the meatus. An operation was about to be undertaken for its removal, when Mr. Crosse

<sup>1</sup> *Loc. cit.* p. 236.



discovered the true nature of the tumour. In adults, eversion of the bladder only occurs where fistulous openings are present.

*Treatment.*—These cases of eversion of the urethra, etc., should be treated by reduction, by rest, and the careful application of lint dipped in cold water as a compress. The retention of a catheter in the bladder has been recommended, but it would seem calculated to increase the irritability of the parts.

#### RETENTION OF URINE

may result from a multitude of causes (see p. 819). Here it is only necessary to point out the method of relieving the patient under such circumstances.

Warm fomentations frequently enable the patient to empty the bladder, but in many cases the use of the catheter is required.

*Mode of introducing the female catheter.*—Ease in the use of the instrument is only to be attained by practice, but the operation is usually effected without much difficulty, by one conversant with the anatomy of the parts. The plan to be adopted is the following: The patient to be laid on her back; the operator is to stand on her right side; the right leg is to be flexed, the sole resting on the bed or couch. The operator then, by means of one finger of the left hand, carried from the abdomen over the pubes, ascertains the position of the clitoris, and of the urethral orifice just beneath it, and, having done this, the right hand, holding the gum-elastic or silver catheter, is passed under the right leg, and the point of the instrument guided into the urethral canal. The principal thing is to make certain, in the first instance, of the position of the clitoris and urethral orifice; the latter is known by the fact that the vaginal canal is immediately below it. If the finger be introduced into the vagina, the urethral canal must therefore be in the median line immediately above it.

It is convenient to have a slender india-rubber tube, five feet long, attached to the catheter. The urine then flows directly into the receptacle, placed on the floor.

In cases where the retention of urine is due to dragging upwards of the bladder by tumours of various kinds, and pressure on the urethra, the direction of the urethral canal is much altered. In such cases a gum-elastic catheter should be always used, and care is required in order to avoid injuring the walls of the canal.

## AFFECTIONS OF THE BLADDER.

*Chronic inflammation* of the bladder is an affection which in some shape or other comes before us rather frequently. After parturition, after operations about the genital organs, it is not unusual for the mucous membrane of the bladder to take on an inflammatory action, which at one time results in the exfoliation of the lining membrane, at another leads to chronic cystitis, with constant secretion of a ropy mucus, an ammoniacal state of the urine, occasional passage of blood, great distress and frequency in micturition, pain in the region of the bladder, and other troublesome symptoms. It is important to bear in mind that the symptoms referable to the bladder are frequently really due to morbid conditions of the kidneys or ureters, or both. Information respecting the diseases of these organs will be found in standard works on medicine and surgery. Incontinence of urine is an affection liable to supervene on labour, when the urethra has been subject to a long-continued pressure.

The timely use of the catheter after labour will prevent that destructive *cystitis* which may be produced by inability of the patient to evacuate spontaneously the contents of the bladder. If cystitis be actually present, with fever, pain, and tenderness, leeches may be required. Demulcent liquids should be given, such as barley-water, and all irritant articles of food avoided. Rest is exceedingly important.

Chronic cystitis may be produced by anteflexion of the uterus. I have met with some well-marked cases and have cured them by treating the uterine affection.

In the *chronic* form of the disease, cystitis is best treated by the administration of the diluted mineral acids; uva ursi and pareira brava are medicines very generally found serviceable, in combination with diluted nitro-muriatic acid. Sir Henry Thompson has introduced the use of a decoction of the underground stem of the *triticum repens*, in cases of chronic cystitis in the male sex, and has found it of very great service in relieving the various distressing symptoms present in such cases. I have found it equally efficacious in the chronic inflammatory affections of the bladder in women. This distinguished surgeon states in reference to the use of demulcent decoctions, infusions, etc., in affections of the bladder, that large quantities are necessary in order that they may prove beneficial. Dr. West speaks highly of the employment

of a seton introduced just above the symphysis in cases of chronic cystitis, and I have seen great benefit from counter-irritation in this locality. The general treatment of the patient in these cases is a matter of great importance; some patients require a liberal diet and regimen, while with others the indication is quite the opposite. The pain and suffering present in cases of cystitis must be relieved by opiates, and these require frequently to be given in considerable doses. In the United States the production of a vesico-vaginal fistula has occasionally been had recourse to in order to cure obstinate cystitis. Dr. Pallen<sup>1</sup> terms the operation 'kolpocystotomy.' When *cystitis proper* exists he is of opinion that 'one remedy only will cure the patient—long-continued and absolute bladder rest. Kolpocystotomy is the only remedy.' The opening is to be made by Paquelin's thermo-cautery at a *red* heat only. The surface is *gently and slowly burned* through. If done too quickly, hæmorrhage or closure results. The opening is kept thus for some months or years.

For the relief of incontinence of urine after labour, which may be more or less complete in degree, time is the great remedial agent. Repeated ablutions of the external genitals have a good effect in restoring the lost tonicity of the sphincter of the bladder. As a general rule, tonics are indicated, and the patient is to be encouraged by the hope—generally a well-founded one—that in the end the lost control over the evacuation of the bladder will be regained.

#### POLYPUS OF THE BLADDER

is a condition which rarely comes under our notice. An instance, recorded by Mr. Birkett, is alluded to by Dr. M'Clintock, of *polypus* arising from the interior of the *bladder* and projecting through the urethra. The case occurred in a child five years old; the polypus grew from the upper boundary of the neck of the bladder, and formed a red mass projecting through the meatus and between the labia. Excision was performed. The child—greatly exhausted at the time—died. Dr M'Clintock is probably right in thinking that the *écraseur* would suit such cases best. According to Dr. M'Clintock only eleven instances of this disease have been placed on record.

<sup>1</sup> *Amer. Journ of Obst.* vol. xi. p. 269.





# APPENDIX.



## A.

### DIFFERENTIAL DIAGNOSIS OF PAINS REFERABLE TO THE INTERNAL GENERATIVE ORGANS, INCLUDING DYSMEN- ORRHŒA.

DIAGNOSIS of NATURE and CAUSE of PAIN REFERABLE to the INTERNAL GENERATIVE ORGANS, INCLUDING DYSMENORRHŒA.—I. Pains associated with Menstruation. II. Pains not associated with Menstruation—General Remarks—Four principal Situations: 1. The Back. 2. The Groins. 3. The Hypogastric Region: (*a*) Intermittent; (*b*) Constant; (*c*) Inflammatory in Character; (*d*) Acute, Intense Sudden Pain; (*e*) Hysterical; (*f*) Bearing-down. 4. Pains in the Lower Extremities—The various Causes of the Pains in these several Situations considered from a Diagnostic Point of View.

PAINS referable to the internal generative organs may be divided into two classes, viz.—(1) Those associated with the performance of the function of menstruation—dysmenorrhœa; and (2) Painful sensations experienced irrespective of menstruation. It may not be possible in all cases to draw an absolutely distinct line between these two classes of cases; but the separation should be made as far as is possible.

#### I. PAINS ASSOCIATED WITH MENSTRUATION, TRUE DYSMENORRHŒA.

In partial retention the pains are situated in the uterine region, and radiate from this point to the back and loins; they may be, and generally are, very severe, more or less paroxysmal in character, resembling, though on a small scale, the pains of labour, and often go on increasing in intensity until relieved. Coming on suddenly, lasting for a certain time, and then going off, to return again after a few minutes or after a longer interval—such is the character of the pain. The patient may not be entirely free from pain throughout; but the occasional, it may be periodic, exacerbation—this it is which characterises it. When the pain is excessive, it may induce disturbances of the nervous system of various kinds—hysteric convulsions, agitation, anxiety, palpitations, tenesmus, pain in micturition, etc. Pain attending menstruation and also coming under the head of dysmenorrhœa may extend to the ovarian regions, deep down behind one or both groins, and it usually extends from this spot down the thighs. It may extend to the loins also.

When there is painful menstruation, the discharge appearing scantily, disappearing for a time, then reappearing, perhaps in gushes, and again ceasing—when this condition of things is noticed at successive menstrual periods, it gives good ground for the suspicion that there is some difficulty in the escape of the fluid, and it will then be necessary to make a vaginal examination, and in certain cases to use the sound also. When coagula having the form of casts of the uterine cavity, or a portion of it, are passed under such circumstances, this is also in favour of the presence of mechanical obstruction.

It is important not to mistake abortion for dysmenorrhœa, and *vice versâ*. In the case of abortion, there has been suppression of the menses for one or more periods; but in dysmenorrhœa there have been usually preceding attacks of similar character, and no suppression of the menses has been (usually) observed. When there has been partial retention of the catamenial fluid, clots are often observed to be passed, accompanied with contraction of the uterus, and pains quite identical with those of labour; and in such cases very careful examination of the substances discharged may be necessary to enable us to distinguish their nature.

In one case which came under my observation, expulsive pains, such as those described above, were found to be due to the presence of a clot of blood in the vagina, the escape of which was rendered difficult by the circumstance of the orifice in the hymen being rather smaller than usual.

## II. DIAGNOSIS OF THE VARIOUS PAINS REFERABLE TO THE GENERATIVE ORGANS, NOT ASSOCIATED WITH MENSTRUATION.

It is well known that a feeling of pain at a particular spot is not always indicative of lesion or of appreciable change at the spot in question. The pain is frequently what is termed a 'reflected' pain; at other times it is produced by pressure on the trunk of the nerve supplying the painful part.

It very frequently happens that pains of all three kinds exist simultaneously. Thus a fibrous tumour growing in the wall of the uterus may give rise to pain of the three varieties above mentioned, viz. pain in the uterine region itself, pain in the back—the reflected pain—and pain in the lower extremities; the latter due to the pressure of the enlarged uterus on the sacral plexus within the pelvis. So also an ovarian tumour may give rise to pain in the pelvis, to pain around the hips or back, and to pain in the thigh, or leg, or foot.

In the estimate of the causes of reflected pains now under consideration, the disorders of the bladder should also not be forgotten.

There is a class of pains referable to the generative organs, and very frequently observed, which may be conveniently described as 'pressure' pains. The nerves which are most liable to suffer from pressure within the pelvis are those issuing from the anterior foramina of the sacral bone, which enter into the formation of the sacral plexus, and which supply also branches to the pelvic viscera. The nerves for a short distance lie close against the sacral bone, only separated from it by the fibres of the pyriformis muscle, and they may, during this part of their course, be compressed by a pelvic tumour against the hard surface of the bone in question. The nerves which are given off from the sacral plexus are, many of them, sensory nerves, and the



effect of pressure on these nerves within the pelvis is therefore to produce pain in the skin supplied by the particular nerve so pressed upon. The following are the localities which may be affected in the manner above described : the hip-joint, the labia pudendi, the clitoris, nymphæ, perinæum, the back of the coccyx, the upper part of the inside of the thigh, the back of the thigh below the gluteus maximus, the leg, and the foot. The upper portion of the labia, and the portions of the skin or other parts of the lower extremity not included in this list, are supplied by branches of the lumbar nerves ; these latter nerves are not liable to pressure from tumours situated in the pelvic cavity—that is to say, when such tumours are confined to that cavity alone.

It is not in the nature of things that any great regularity should be observed in the relation subsisting between location of lesion, and location of pain thereby produced, many circumstances being likely to modify or affect the result in particular cases.

There are four principal situations in which pain referable to the internal generative organs is experienced by women suffering from disorders of those organs.

They are—(1) The back ; (2) the groin, or ovarian region ; (3) the median hypogastric region ; (4) the lower extremities.

Pain in the back is a well-known sign of uterine disease. But it is not so well known that pain in one or both of the groins is often a sign of uterine disease. That such is the case, however, is very certain, and I am anxious to call prominent attention to it. Formerly a pain situated in this situation was referred to the ovaries, probably in consequence of the ovary being near the spot. I was led to associate this pain with the uterus simply in consequence of the observation recurring over and over again, that patients so complaining were almost invariably found to be affected with ante flexion of the uterus. Latterly I have come to regard this pain as an almost certain sign of the presence of the affection in question, and it has very considerably modified my views as to the share the ovaries take in producing pains referred to the region in which the ovaries are situated.

### 1. PAIN IN THE BACK

is one of the most common symptoms present in women labouring under uterine or allied disorders. The pain here alluded to more usually affects the lumbar and sacral regions and the parts adjacent ; it is not usually an acute pain, but an ill-circumscribed, aching sensation, very wearying, and often extremely distressing to the patient. The intensity of this pain is not by any means proportionate to the severity of the disease present.

One of the most common causes of pain in the back is flexion of the uterus. Retroflexion is particularly associated with it, but ante flexion is very frequently the cause of it. Again, in quite exceptional cases, these flexions may be unattended with back pain. Pain in the back generally also attends expulsive action of the uterus from *whatever* cause that expulsive action may originate. The dilatation of the os uteri is generally attended with pain in this situation. Pain in the back is not necessarily indicative of disease of the generative organs, but the fact that a patient has for a considerable period suffered from pain of this description should induce the practitioner to consider whether disease of the internal generative organs,

up to that time possibly overlooked and unrecognised, be not present, and to take measures for satisfying himself on this point. The connection between the pain in question and the presence of uterine or other internal disorder is often substantiated by the fact that before, during, or immediately after the menstrual periods, it is most troublesome; sometimes, indeed, it is only present at such times. The pain of ordinary lumbago is the most likely to be confounded with it. Attacks of lumbago are, however, more acute in character, and they occur irrespective of the menstrual periods. Diseases of the vertebræ, aneurism, diseases of the kidneys, etc., are some not uncommon causes of persistent aching or pain in the back.

## 2. PAINS IN THE GROINS.

A pain felt in the situation indicated is most commonly due to *anteflexion of the uterus*. That this is a fact I am convinced by very numerous observations. Anteflexion does not invariably produce such a pain, but it does so in nine cases out of ten. The pain is a wearing, more or less constant one, increased by motion, sometimes only produced by motion, generally confined to one side, but not always. For further remarks on this subject, see chapters on 'Flexions.'

In some few instances a settled, fixed, constant pain is present in the anterior part of the abdomen, rather higher up than the groin, and nearly on the level of the umbilicus. Such a pain I have met with, and traced its connection with *retroflexion* of the uterus. Some most remarkable instances of this have occurred to me in private practice, the pain ceasing instantly on removal of the cause. As a rule, retroflexion gives rise to pain in the back rather than the front part of the abdomen, but these exceptional cases do occur. Formerly such cases would have been termed 'hysterical.'

*Ovarian pain*, referable to the ovaries, and situated deep down sometimes in the inguinal or iliac region, is observed in some few cases, but numerically they are few compared with that in which the pain is due to alterations of the uterus itself, as above explained. It may be due to interrupted or 'disappointed' (to use Dr. Farre's words) ovulation, which may be likened to the aching caused by distension of the testicles, or be due to chronic inflammatory action in the follicles themselves. In a few cases the pain is a kind of neuralgia of the part without inflammatory action. It may be due to *sexual irritation*. Undue sexual irritation in the male is accompanied by aching and pain in the testicles. This pain seems to be comparable with it.

Another cause of ovarian pain, to which attention has been directed by Bernutz, and de Meric,<sup>1</sup> is gonorrhœal infection. An inflammatory action appears to be set up in the ovary, or in the peritoneal membrane near the ovary, in some cases of gonorrhœa, analogous to the orchitis witnessed in the male.

A variety of this form of pain was described by Dr. Rigby as being indicative, together with other signs, of a displacement—a kind of prolapsus of the ovary. The pain alluded to is 'a peculiarly sickening pain about the sacral region, extending to one or other of the groins, and coming on in paroxysms of such agonising severity as to render the patient frantic with the intolerable suffering.'<sup>2</sup> The pain is greatly aggravated by passage of the fæces; the part in the vagina corresponding to the ovary is tender to the

<sup>1</sup> *Lancet*, June 14, 1862.

<sup>2</sup> *On Diseases of Women*, p. 278.

touch. 'It bears a close resemblance to the intense and peculiar sufferings in a case of orchitis.' Further, says this author, 'the menstrual periods are always attended with greatly increased suffering.' I have not met with such cases, unless in association with severe retroflexion of the uterus.

### 3. PAINS IN THE HYPOGASTRIC REGION.

The pains due to uterine diseases are frequently situated in the central hypogastric region. For diagnostic purposes we may consider—(a) Intermittent pains ; (b) pains more or less constant ; (c) pain of inflammatory character ; (d) with symptoms as of perforation ; (e) hysterical pain ; (f) bearing-down pains.

#### (a) *Intermittent Pains.*

The most characteristic and most interesting, from a diagnostic point of view, are those pains which may expressively be termed *labour-like pains*. The pains in question are peculiar in their nature ; they come on in paroxysms, lasting a certain time, and leaving the patient pretty free during the intervals ; and they are due to contractions of the uterus, generally excited by the presence of some body, substance, or fluid, within this organ. Under certain circumstances, it appears that pains very closely resembling these may be produced by the contractions of the vagina wall itself, as in cases of clots of blood or foreign bodies in this canal. In most of these cases, uterine contraction is associated with the vaginal contractions in such a way that the latter element in the phenomena is unrecognised.

The typical 'labour-pain' is that observed during parturition at full term, where the uterine contractions are most severe and most powerful.

In *women who have never menstruated*, the presence of hypogastric pain of the kind in question should make us suspect closure of the hymen, of the vagina, or of the os uteri, and that the menstrual fluid, although secreted, could not be expelled. As month after month passes without relief, they become more severe, and are finally of the most intense character. The enlarged uterus is usually then to be felt above the pubes.

In *women who have menstruated*, hypogastric pain recurring at intervals, sharp while it lasts, and leaving the patient free from pain in the intervals of the paroxysms, may be due to *abortion*. If the patient had passed over one or more periods without menstruating as usual, and if the pains above described were accompanied by a discharge of blood from the vagina, this would render the suspicion of abortion so strong as to necessitate not only an examination *per vaginam*, but also a careful inspection of the matters discharged.

Respecting an abortion taking place at four, five, or six weeks, it would be exceedingly difficult for the practitioner to affirm positively that the case was one of abortion, unless he were fortunate enough to secure the ovum itself.

*Menstrual retention occurring subsequently to more or less regular performance of the menstrual function.*—In these somewhat rare cases, generally due to closure of the os uteri, labour-like pains may be present.

In cases of *peri-uterine hæmatocele*, labour-like pains are usually observed, either preceding the occurrence of the hæmorrhage, or produced by the pressure of the hæmorrhagic effusion in the pelvis.



*Presence of blood-clots, fibrous polypi, retained portions of placenta or fetal membranes, degenerated (e.g. hydatidiform) ova,* within the uterus. The uterus appears to be very capricious in regard to tolerance of the presence of bodies within it : large polypi are sometimes found in the uterus, which have given rise to comparatively little pain ; while, in other cases, the patient may have been tormented almost daily by severe colic-like pains in the hypogastric region from a comparatively small growth of the same nature.

*Tumours growing in the substance of the uterus.*—Of these the fibroid tumour is a frequent source of pains of the kind now under consideration. The pains are most severe when the tumour is so situated as to impede the escape of fluid from the uterine interior. In cancer of the uterus, labour-like pains are frequently present, especially at an advanced stage of the disease.

*Collections of puriform or other fluid in the uterine cavity.*—In women suffering from chronic *flexions*, when the canal of the cervix is not so large as to allow a free passage of the fluid secreted, the uterus sometimes becomes distended with serous or puriform fluid, and labour-like pains supervene. This retention of fluid in the uterus in association with flexions is by no means uncommon. The discharges may in such cases be *offensive*. Such retention may occur when the uterus is *dislocated* from its normal position by presence of tumours in the ovaries, etc. These labour-like pains are then also noticed.

*Intestinal irritation, e.g. dysentery.*—Pains due to this cause, and simulating the labour-like pains above described, may give rise, at all events at first, to obscurity in the diagnosis. The pains produced by lead-poisoning, and known as *colic*, could hardly be confounded with those of uterine origin.

*Neuralgia of the uterus.*—In a lady whom I had attended for some years, the subject of occasional severe neuralgia, the neuralgia was frequently accompanied by what she herself termed ‘labour-pains.’ The pains in question were temporary, and subsided when the neuralgia had located itself elsewhere. Cases where such pains are more persistent are described by various authors as *rheumatism of the uterus*. Some of these cases are possibly really due to fibroid tumours.

*Retention of urine.*—That this condition may give rise to labour-like pains the following case, the particulars of which were kindly furnished me by Dr. Leonard W. Sedgwick, will show : He was called to a young woman who was supposed to be in labour. In the abdomen was felt a tumour the size of a nine months’ uterus ; the patient was apparently in strong labour ; violent bearing-down pains, with only a short interval, were observed. The woman denied pregnancy, the tumour was found to be elastic, and no foetal limbs or body could be felt. Dr. Sedgwick tried the catheter and removed an incredible quantity of urine from the bladder. The straining efforts of the patient to evacuate the bladder gave rise in this case to ‘labour-like pains in very great perfection.’

(b) *Pains more or less constant.*

These may occur in all degrees of intensity, and the causes of the same are so numerous as almost to defy classification.

In *cancer of the uterus*, severe hypogastric pain, which is generally remittent in character, accompanies almost constantly the more advanced stage of the disease; whereas at an earlier period in the history of the affection the pain is not so severe, and is more generally situated in the back. The 'lancinating' pain which has been considered by some authorities as an early sign of cancer is correctly described by Dr. Rigby as 'a sudden sharp burning dart of neuralgic severity, always proceeding from one spot, and sometimes transfixing the whole pelvis.' But when hæmorrhage, offensive discharges, and pain of the kind now described are all present together, a careful physical examination of the uterus is necessary; for there is a presumption that the case is one of cancer. Hæmorrhage and pain are sometimes entirely absent.

In *fibrous tumour of the uterus*, severe hypogastric pain may be present.

*Flexions of the uterus* frequently occasion a pain in the hypogastric region.

*Neuralgia of the uterus*.—It is most rare for the uterus to be the seat of pain unless afflicted with flexion or some organic disease. The cases which were formerly designated cases of 'irritable uterus' are otherwise explainable. (See Chapter XVII. p. 163.)

*Disease of the bladder*.—Pain more or less persistent, and of a dull aching character, is observed where the bladder is inflamed—*cystitis*—the symptoms varying according to the intensity of the inflammation present. The function of micturition is always disordered in such cases, there being generally great irritability of the bladder, and consequent frequent and painful micturition. The cystitis may be idiopathic, it may be due to disease—*e.g.* calculus of the kidney—it may be secondary to diseases of the uterus, or it may be due to *malignant disease* situated either in the uterus or in the walls of the bladder itself. In some cases the sufferings experienced by the patient, and due to the presence of cystitis, are very severe. As a rule, the disturbances in the function of micturition, associated with this disease, render the diagnosis of the affection easy, but the presence of the disturbances in question does not necessarily point to the conclusion that the bladder is actually inflamed. The condition of the urine itself should be carefully inquired into, there being usually a large quantity of ropy mucus present in cases of cystitis.

### (c) *Pain of Inflammatory Character.*

Under this head are included all cases in which the ordinary signs of inflammation are present—pain, more or less acute in character; heat and throbbing; tenderness to the touch; feverishness; quickness of pulse, &c. These symptoms are often preceded by the occurrence of a rigor. They indicate inflammation of the uterus, of its peritoneal covering, or of some of the adjacent viscera or their coverings; and they are most commonly the consequence of labour, of abortion, of sudden disturbance of the menstrual function, or of operations about the genital organs. A frequent result in such cases is formation of *pelvic abscess*. Hæmorrhage into the peritoneal cavity, from whatever cause, may give rise to severe peritonitis and pain. An important class of cases are those in which inflammatory action is set up in the interior or on the surface of ovarian cysts. In a woman the subject of ovarian dropsy, sudden access of pain of this kind would excite suspicion

that inflammation of the cyst was present. Acute inflammation of the bladder is a condition giving rise to presence of hypogastric pain of the kind now under consideration.

An error liable to be committed is that of taking for inflammation a reflected pain, such as is observed in cases of so-called 'hysterical' character. The pulse is the best criterion. In cases otherwise closely simulating actual peritonitis, or inflammation of the uterus, or of the adjacent organs, the frequency of the pulse present in the latter affection is wanting.

An important class of cases are those in which

*(d) Pain of an Acute and Intense Character is suddenly felt in the  
Hypogastric Region,*

accompanied by great prostration, and depression and shock to the system generally. Fainting, continuing for a considerable time and frequently recurring, great pallidity of surface, cold clammy perspiration, weakness or almost complete absence of pulsation at the wrist, a feeling of sickness or violent and uncontrollable vomiting, are symptoms often witnessed in this class of cases. To these is usually added considerable swelling of the abdomen.

The symptoms in question are such as to excite suspicion of perforation or rupture of some of the abdominal or pelvic viscera, with consequent escape of blood or contents of the ruptured viscera into the peritoneal cavity, or rupture of an abscess and effusion of pus into the peritoneum, from bursting of an ovarian cyst, etc.

The conditions which may give rise to the alarming symptoms above described will now be enumerated.

The pain may be produced by an affection of the abdominal or of the pelvic viscera, and there are no signs by which it can be absolutely determined at the moment whether the seat of the accident be in the abdomen or in the pelvis proper. The concomitant circumstances generally enable us to decide this point, or the course of the case determines the diagnosis in this particular.

In *perforation of the intestine*, as from typhoid fever, from tuberculous ulceration, or connected with organic disease of the abdominal viscera, etc., the previous history would generally suggest the proper interpretation of the symptoms; and the pain is more usually, perhaps, referred to the umbilicus, or a point above it, than to the hypogastric region.

Certain conditions of the pelvic viscera, especially, are capable of giving rise to the symptoms in question. The following are the most important of these:—

*Pelvic hæmorrhage from the ovaries, Fallopian tubes, etc.; including cases of peri-uterine hæmatocele.*—The accident mostly occurs during or immediately after the occurrence of a menstrual period. It may happen in women previously healthy, but is more generally observed in women who are anæmic, and in whom there have been menstrual irregularities (see Chapter XL. p. 570). Walking a long distance, straining, the act of intercourse, or sudden muscular effort, may precede the attack; it may occur also without such apparent exciting cause. The symptoms observed in such cases vary in degree of intensity; there are reasons for believing that, in a slight form, the accident is rather common, and, the symptoms being less severe, its true



nature escapes recognition. When symptoms of the above kind occur in an intense degree, and in a woman who has been subjected to the foregoing influences, it may be suspected that they are due to a sudden outpouring of blood. The diagnosis is established by recognising the presence of a semi-solid tumour above the pubes, or pressing on the vaginal walls—the effused blood—such tumour having been before wanting.

*Hæmorrhage in extra-uterine pregnancy.*—There is an important class of cases, in which an outpouring of blood takes place in connection with pregnancy, and more particularly with pregnancy of an abnormal kind—extra-uterine pregnancy. The hæmorrhage due to extra-uterine pregnancy may give rise to the formation of a tumour in the pelvis, of the same kind as that witnessed in pelvic hæmorrhages of other kinds.

Cases in which the ovum is situated in one of the Fallopian tubes frequently occasion symptoms having the character of those described, and in a very intense degree; the suddenly occurring violent pain and the extreme degree of syncope being the most significant. Here the patient is usually known or suspected to be pregnant. There may have been nothing about the case to excite particular attention; but more generally the woman has experienced unusual pains, or more discomfort than in ordinary pregnancy. Slight occasional losses of blood are frequently observed in these cases of extra-uterine pregnancy, which are, under such circumstances, often mistaken for return of menstruation. The rupture occurs in the third or fourth month, or earlier in the majority of cases, when the ovum is in the Fallopian tube; it is rare that it is postponed much later than this. On the other hand, the time of rupture may be considerably later than this, if the ovum be attached just without the tube, or in the abdominal cavity itself; and there may be no rupture at all, the pregnancy going to full term, with further results, which need not be particularly alluded to in this place. Rupture of the foetal-containing cyst generally occurs when the foetus is developed in the Fallopian tube; but in cases of extra-uterine pregnancy of the ‘abdominal’ kind, rupture is, on the contrary, rare. The hæmorrhage which takes place in cases of extra-uterine pregnancy is generally so great as to kill the patient, and death often takes place very quickly. In some cases the patient lives longer, and dies apparently from the effect of a succession of hæmorrhages.

*Rupture of the gravid uterus itself.*—There are a few cases on record in which this accident has happened, and without any very obvious cause. The third, fourth, and fifth months are the various periods during which this has been observed. The symptoms noticed at the time of the rupture would not essentially differ from those present in rupture of an extra-uterine pregnancy, but the previous history in the cases might be somewhat different.

*Rupture of ovarian cysts,* with escape of their contents into the peritoneal cavity, does not, as a rule, give rise to marked disturbance; in some cases, however, when, concurrently with the rupture, there is hæmorrhage, severe symptoms may be produced, more or less identical with those described; and even without hæmorrhage occurring, the escape of the contents of such cysts may give rise to severe symptoms and death. Thus, in a case recorded by Dr. Gillespie, an ovarian dermoid cyst, containing hair and pus, burst; the pus was effused into the peritonæum, and the case speedily proved fatal. In this instance, the symptoms were, for a few previous days, diarrhoea,

occasional vomiting, abdominal pain. These, especially the vomiting, became suddenly aggravated, and death took place in a few hours, from collapse. The symptoms closely resembled those due to irritant poisoning.<sup>1</sup>

(e) *So-called Hysterical Pain.*

It is well known that the abdomen is very frequently the region in which pain is seated in cases of so-called hysteria. From other pains seated in the hypogastric region, hysterical pains are discriminated by careful inquiry into the history of the patient, when previous occurrence of hysterical symptoms is substantiated, and by the absence of signs of inflammation or mischief of other kinds. The character of the pain offers in itself no conclusive indication, for hysterical pain may resemble in degree and intensity almost all other varieties of pain. In most of such cases, the patient is the subject of chronic flexion of the uterus.

(f) *Bearing-down Pains.*

In women suffering from chronic disease of the uterus, complaint is often made of what are called *bearing-down pains*. They more frequently occur in women who have lost flesh and who are in a bad state of health, and in whom the uterus is diseased. Diseases of the uterus involving change of shape or position of the organ cause them more particularly, anteflexion of the uterus very commonly so. In some cases where bearing-down pains are present there is partial or complete prolapsus of the uterus or of its cervix. The bearing-down sensation is also present in cases where tumours of the uterus, pregnancy, polypi or fibroid tumours, cancer, etc., exist. It may be due to prolapsus of the bladder. The presence of pains of this character generally points out the necessity for exploration of the uterus from the vagina.

### PAIN SEATED IN THE LOWER EXTREMITIES.

It has been already explained how and why it is that tumours or enlargements of various kinds of the organs within the pelvis may give rise to pains situated in certain parts of the lower extremities. These pains have a mechanical origin, and there is consequently no sign by which we can distinguish, by means of the pain alone, the nature of the substance that is exercising the pressure which is the cause of the pain. The 'pressure' pains are very important, however, in directing attention to the presence of tumours in the pelvis which might be otherwise overlooked. I have several times noticed pain of this kind in *early pregnancy*, and the occurrence of the pain attracted attention to the possibility of the presence of a tumour in the pelvis. In cases of retroflexion of the uterus, pain of this kind is a very common occurrence.

The pain frequently felt at the upper and inner part of the thighs and in the perineal region, in cases of *ovarian tumour*, is an instance of the same kind. Painful cramps are occasionally experienced in the calves of the legs, in cases where pelvic tumours are present. Cramps of this kind are frequently observed in labour, and these appear to be due to pressure of the

<sup>1</sup> *Edin. Med. Journ.* May 1862.

hard parts of the foetus on the sacral nerves. Pains situated in the anterior and other parts of the thighs, which regions are supplied with nerves from a different source, do not indicate presence of a pelvic tumour. To this rule, however, there is an exception occasionally witnessed in cases of *pelvic abscess*, where the tumour rises up above the brim of the pelvis, and gives rise to pressure on certain branches of the lumbar plexus of nerves as they pass with the psoas and iliacus muscles from the abdomen to the thigh. Pain at the outer part of the thigh is not rarely a marked symptom in cases of pelvic abscess. Another symptom frequently noticed under these circumstances is painful contraction of the thigh, with inability to extend the limb.

In the majority of cases, the pains felt in the lower extremities belong to the 'pressure' class.

Lastly, it must be remembered that there are many conditions capable of giving rise to pains in the lower extremities, quite unconnected with diseases or derangements of the generative organs. The following case may be mentioned as showing how irritation or injury within the pelvis may occasion pains elsewhere: A lady had been operated on for stricture of the cervix uteri upwards of a year previous to my seeing her. She was then suffering from severe pain in the groin and pain in walking. The whole of the upper and inner part of the left thigh, the external part of the thigh, the gluteal region, the crista ilii and the left side of the sacrum were found very tender and acutely sensitive. Pelvic abscess was feared. After three months' rest the extreme sensitiveness still remained and localised in the same spots, but there was no evidence of formation of pus. This case was one of reflected pain, the primary cause being probably injury of a nerve in the operation.



## B.

## DIFFERENTIAL DIAGNOSIS OF PELVIC TUMOURS AND ENLARGEMENT OF THE UTERUS, INCLUDING PREGNANCY, BY DIGITAL EXAMINATION OF THE VAGINA.

Enumeration of Tumours felt through the Vaginal Walls, and Summary of the Diagnosis—Distension of the Bladder—Calculus of the Bladder—Distension of the Rectum by Fæces—Cancer of the Rectum—Retroversion and Retroflexion of the Unimpregnated Uterus—Retroversion and Retroflexion of the Gravid Uterus—Anteversion and Anteflexion of the Uterus—Fibroid Tumours growing from, and in, the posterior part of the Cervix Uteri, or from the Uterus itself—General Enlargement of the Uterus from whatever cause—Pregnancy—Enlargement of Fallopian Tube, due to Distension by Serous or Purulent Fluid, by Blood, and Fallopian Pregnancy—Abdominal Pregnancy—Blood Tumours of the Pelvis (Peri-uterine Hæmatocele)—Ovarian Tumours; Diagnosis of the smaller and of the larger Ovarian Tumours from other Pelvic Tumours—Cysts of Broad Ligament (Wolffian Cysts)—Hydatid Cysts—Pelvic Cellulitis and Abscess—Osseous or other Solid Tumours growing from the Pelvic Walls.

It is here intended to consider the diagnosis of tumours situated in the pelvis around the vaginal canal, and whose presence is there perceivable by the finger.

In Chapter III., p. 27, will be found particular directions for placing the patient in a favourable position for examination. Attention to these particulars is imperative.

The points to which it is necessary to direct attention are—the degree of resistance imparted to the touch, the presence of fluctuation, the mobility or fixed character of the tumour, its size, its shape, and its relation to the uterus, the presence of inflammatory signs, tenderness, puffiness, or swollen condition of the parts with which the finger is brought into contact. When by careful observation we have obtained a good idea of the physical conditions of the tumour, the diagnosis is not a matter of much difficulty, unless in very exceptional cases. In many cases it is necessary, in order to complete the diagnosis, to conjoin with the vaginal examination an examination of the abdomen.

A tumour felt through the walls of the vagina on digital examination may be caused by—

Distension of the bladder.

Calculus in the bladder.

Distension of the rectum by fæces.

Cancer of the rectum or posterior part of the uterus.

Retroversion and retroflexion of the unimpregnated or gravid uterus.

Anteversion and anteflexion of the uterus in the non-gravid or gravid state.

Fibroid tumours growing from, and in, the posterior part of the cervix uteri, or from the uterus itself.

General enlargement of the uterus, from whatever cause ; including pregnancy.

Enlargement of Fallopian tube, due to distension by serous or purulent fluid ; or by blood, and extra-uterine pregnancy.

Blood tumours of the pelvis (peri-uterine hæmatocele).

Ovarian tumours, also enlargement or congestion of the ovary.

Cysts of the broad ligament (Wolffian cysts).

Hydatid cysts.

Pelvic cellulitis and abscess.

Osseous or other solid tumours growing from pelvic walls.

The tumours which may be *felt equally on all sides*—that is to say, which are not felt exclusively in one or other position—are the following: Enlargement of the uterus ; peri-uterine hæmatocele ; pelvic cellulitis ; ovarian tumours ; extra-uterine pregnancy ; fibroid tumours. Ascitic distension of the peritonæum should perhaps be added to this list, although there is no tumour in the strict sense of the word in such cases.

The tumours which are felt exclusively *behind* the os uteri are—distension of the rectum by fæcal matters ; cancer of the rectum ; retroversion or retroflexion of the uterus, gravid or non-gravid.

The tumours which are felt usually, but not exclusively, *behind* the os uteri are—ovarian tumours in their early stage of growth ; distension of the Fallopian tube by fluid of any kind ; Fallopian pregnancy ; Wolffian and hydatid cysts.

The tumours felt exclusively *in front* of the os uteri are—calculus in the bladder, distension of the bladder with urine, anteversion and anteflexion of the uterus.

If for the word 'behind' the word 'laterally' be substituted, in the foregoing summary, the account given will still be true, for those pelvic tumours which are lateral are generally also posterior to the uteri, and *vice versâ*.

This short statement may serve to indicate the more prominent characteristics of the tumours included in the foregoing list. The several conditions in question will now be considered in detail, and their diagnostic peculiarities pointed out.

*Distension of the bladder* is more particularly observed when there is prolapsus of the uterus. In such cases the bladder may be partially protruded as far as, or beyond, the vaginal outlet. The softness, the presence of fluctuation, its position, and the fact of the tumour disappearing on using the catheter, are characteristic.

*A stone in the bladder* is readily felt through the lower wall of the bladder, by the finger introduced into the vagina ; and the size and shape of the calculus or calculi can also be made out by this method of examination : an examination of the interior of the bladder, by means of the catheter or sound, would substantiate the diagnosis.

*Distension of the rectum by feces*.—In this case a tumour is felt behind and through the vagina, in the position which the rectum is known to occupy. The distension is sometimes so considerable, that the tumour whose presence is known to us by this method of examination, is very large.

It is hard and irregular, and its shape is identical with that of the rectum. Such a tumour it is hardly possible to confound with anything else.

*Cancer of the rectum.*—There may be felt behind the vagina, in such cases, a hard, irregular, nodulated tumour, evidently belonging to the rectum, and which may or may not be the seat of pain and tenderness on pressure. The cancerous mass may, and usually does, produce stricture, and accumulation of fæces in the tube above, but very frequently there is a constant diarrhoea. It may be necessary to unload the rectum by means of enemata, to ascertain the position and relations of the cancerous tumour. This malignant disease may be found to have extended to the vagina itself, at its upper part, or it may appear to be an extension from the back of the uterus. The thickening of the vaginal walls, its adhesion to the parts beneath, and its continuity with the morbid and painful enlargements around the rectum, indicate its nature. Cancer of the encephaloid variety has in some rare cases been known to grow from the recto-vaginal septum, project into the vagina, and appear as a tumour between the nymphæ. Examination of the attachments of the tumour would clearly indicate its origin, as distinguished from tumours growing from, or connected with, the cervix uteri.

*Retroflexion or retroversion of the unimpregnated uterus* is readily distinguished by the tumour forming part of the uterus, and by the use of the sound. It is most likely to be confounded with fibroid tumour growing from the back of the uterus.

*Retroflexion of the gravid uterus.*—Here the tumour may be of considerable size, the os is high up and difficult to reach, the patient is generally known to be pregnant, and the tumour has a softer feel than is communicated by a fibroid tumour in the same position (see p. 339).

When the gravid uterus constitutes the tumour, the symptoms usually show themselves with great intensity, and quickly. The use of the sound would of course clear up all doubts, but unless the case be clearly not one of pregnancy, this instrument must not be had recourse to. An ovarian tumour does not effect such an amount of dislocation upwards of the os uteri as is witnessed in the other case. From extra-uterine pregnancy, in which also a tumour may be present behind the upper part of the vagina, it is to be distinguished by the continuity of the tumour with the uterus, also by the non-symmetrical shape of the tumour in extra-uterine pregnancy. From fluid or bloody distension of the Fallopian tube, and from Fallopian pregnancy, the tumour due to retroflexion of the gravid uterus is also to be distinguished by its central position, its greater firmness, the continuity of the tumour with the cervix, etc.

Another condition with which retroflexion of the gravid uterus may be confounded is retroflexion of the unimpregnated uterus, accompanied with hypertrophy of the fundus and of the uterus generally, and with or without development of fibrous growths in the posterior uterine wall. Retroversion of the uterus with a fibrous tumour or tumours growing in its posterior wall, suddenly occurred to a patient who came under my notice with enormous distension of the urinary bladder. Here the effect was pretty much the same as if the uterus had been enlarged from pregnancy and had become suddenly retroverted. The greater elasticity, smoothness, and regularity of a tumour constituted by the impregnated uterus would, however, be the

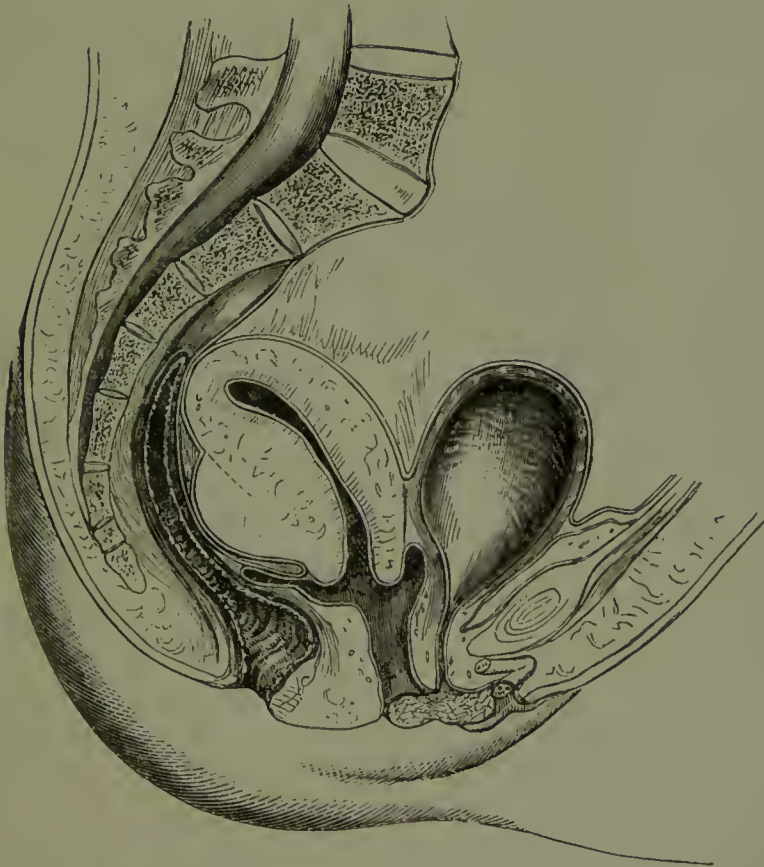


distinguishing character of the one, as the hardness, firmness, and resistance would be the distinguishing characters of the other condition.

In endeavouring to make out the diagnosis of a case of retroflexion, the examination by the rectum is of great value.

*Anteversión and anteflexion of the uterus.*—If a tumour be felt through the vaginal walls in front of the cervix uteri, hard, smooth, and rounded in shape, while the os uteri itself is thrown somewhat backwards, the case may prove to be one of anteversion or anteflexion. The use of the sound, with proper precautions, would give us correct information as to this point, and prevent our falling into the error of Levret, who mistook an anteverted fundus for a calculus in the bladder.

FIG. 203.



*Anteflexion of the gravid uterus* is a condition which is, according to my experience, rather common. Its due recognition is most important, as miscarriage is to be apprehended when the symptoms accompanying it—*e.g.* severe vomiting and disturbance of the functions of the bladder—are well marked. The tumour is felt in front of the os uteri, which latter is situated further back than usual. The functions of the bladder are generally interfered with very much in such cases. During the fourth month the dislocation usually becomes reduced, and the patient is relieved—that is to say, in those cases in which a miscarriage does not occur before that period has been reached (see p. 346).

*Fibroid tumours growing from and in the posterior part of the cervix uteri, or from the uterus itself* (see fig. 203).—It is sometimes difficult to distinguish between this condition and retroflexion of the unimpregnated uterus. In

both there is a tumour, hard, smooth, and resistant, felt behind the upper part of the vagina and moving with the uterus. If a depression be felt between the tumour and the cervix, the case is probably one of flexion of the uterus. It is not a very common circumstance for tumours to grow in this position, the more usual seat of fibroid tumours being higher up than the cervix. Fibroid tumours growing from the uterus higher up and hanging down into the utero-rectal pouch might be mistaken for retroflexion of the uterus, provided that the shape of the tumour resembled that of the fundus of the uterus. The mobility of the tumour, and its want of connection with the lower part of the uterus, would distinguish it from that due to fibroid tumour growing lower down. There is generally, in such cases, a want of symmetry in the tumour which is sufficient of itself to distinguish it from retroflexion of the uterus.

GENERAL ENLARGEMENT OF THE UTERUS, FROM WHATEVER CAUSE.—When the cavity of the uterus is considerably distended by the presence of a foetus, by a large polypus, or from whatever cause, a tumour may be felt behind or in front of the upper part of the vagina. In cases of pregnancy, the recognition of the presence of this tumour is of the greatest possible assistance in establishing the diagnosis.

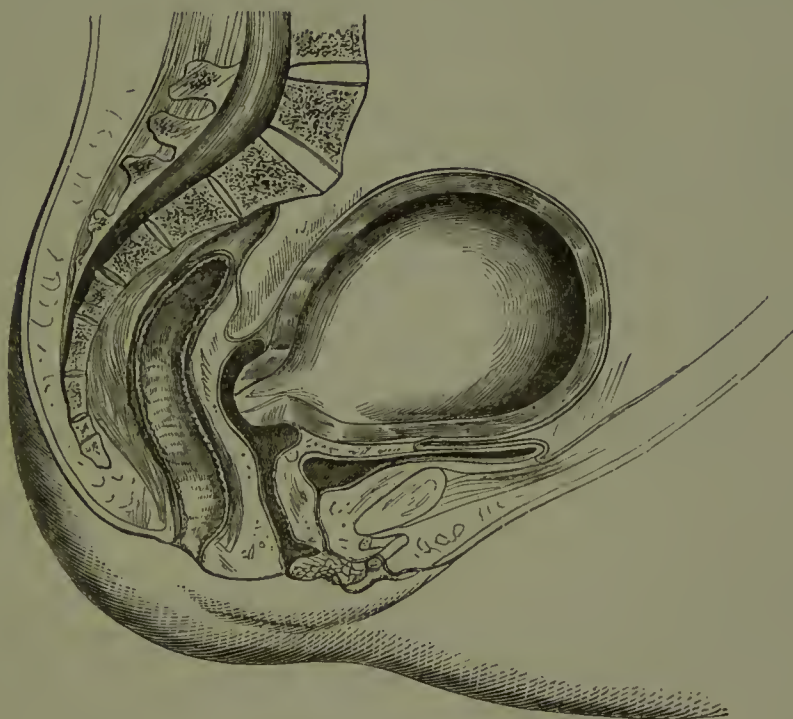
*Pregnancy.*—The recognition of the presence of enlargement of the uterus is of the utmost importance as a sign, and one of the most reliable, of the existence of pregnancy. In some cases of pregnancy it is not easy to establish the presence of a uterine tumour by a vaginal examination, when such undoubtedly exists; in others, a uterine tumour being present, the difficulty is to associate it with pregnancy.

In normal pregnancy, the increase in the size of the uterus is not at first considerable, nor easily appreciated. The organ remains in the pelvis for about the first three months, and it is only towards the end of that time that, by a digital examination from the vagina, this increase in size can be positively appreciated. It may be easy to follow the growth of the uterus in a given case, when examinations are made from time to time, and opportunity for comparison is thus afforded, but it is not easy to pronounce upon the actual state of matters on the results afforded by a single examination. The increase in the size of the uterus, such as is due to pregnancy at a later period, is, however, more obvious, and it is then possible, also, to correct the results of a vaginal examination by the information derived from an abdominal examination.

Evidence of the enlargement of the uterus due to pregnancy is to be sought in the space between the cervix uteri and the pubes—*i.e.* through the roof of the vagina. At the middle of pregnancy—during the fifth month—a rounded, smooth, tense, resistant tumour is here encountered by the finger, and this tumour shades off insensibly into the cervix uteri, there being no separation between them. There is sometimes a difficulty in recognising this tumour when it is present: Gooch expressed the opinion that ‘the young practitioner finds more difficulty in satisfying himself about this symptom than about any other which is detected by touch;’ and the statement is undoubtedly true. The difficulty sometimes arises, apparently, from the fact that the bladder, somewhat distended with urine, intervenes; at other times, from the tense elastic condition of the walls of the vagina and adjacent structures, interfering with the recognition of the tumour. If the

supposed pregnancy have gone so far as the fifth month, the difficulty is almost always capable of removal by placing the other hand above the pubes—by, in fact, employing conjointly the abdominal and the vaginal examination. Before the fourth month, however, the difficulty of detecting the enlargement is greater, and there is less possibility of correcting an error by having recourse to another method of examination. During the early months of pregnancy the uterine tumour is harder, firmer, and more resistant than it is subsequently, and the enlargement is not so easily got at, so to speak, from the vagina, owing to the interposed, and at first not materially altered, vaginal portion of the cervix uteri.

In pregnancy the menses are (usually) absent, the os is soft (see examination of os uteri, p. 34), whereas in chronic enlargement or hypertrophy of

FIG. 204.<sup>1</sup>

the uterus the lips of the os are unchanged in this respect; further, in the latter case the enlargement remains pretty much *in statu quo*. The diagnosis of enlargement of the uterus due to fibroid tumour or polypus uteri from early pregnancy rests on nearly the same grounds; moreover, these fibrous growths generally give rise to hæmorrhage, or to more or less profuse menstruation. But a case may come before us in which it is a question whether a particular hæmorrhage be due to abortion, to fibrous tumour, or to polypus of the uterus. In abortion the os uteri is large, soft, and open, whereas in fibroid tumour occasioning hæmorrhage the aperture is smaller, and the os is not soft as is the case in pregnancy. In cases of threatened abortion the os may, however, be found small. In polypus uteri the os may be open as in abortion, but the softness of pregnancy is not present. All these statements must be received subject to certain qualifications, elsewhere men-

<sup>1</sup> Fig. 204 represents the position and relations of the uterus at the fifth to the sixth month. [The uterine wall is drawn a little too thick.—G. II.]



tioned, in reference to the condition of the os during the early months of pregnancy. Cancer confined to the body of the uterus alone, which is a rare disease, could not be well mistaken for early pregnancy; the discharge, hæmorrhages, pain, etc., would put pregnancy out of the question.

The possibility of one of the conditions alluded to coexisting *with* early pregnancy must not be forgotten. In such cases much more difficulty would be encountered in making a complete diagnosis.

In cases of extra-uterine pregnancy, the uterus is enlarged and undergoes the same kind of changes, though not to the same degree, as in normal pregnancy.

*After the fourth month of pregnancy* the enlarged uterus is to be felt more distinctly between the cervix and the os pubis; the tumour is tolerably firm, and it is reached with a variable degree of ease. It gives an obscure sense of fluctuation, and *ballottement* is perceivable. The position of the patient which is most favourable for the purpose of ascertaining the existence of *ballottement*, is the erect posture. The rectum and bladder having been thoroughly evacuated, the finger is pressed upwards, resolutely but slowly, against the uterine tumour, and it is then very suddenly made to retreat for the space of half an inch or so, and there retained. The following instant the point of the finger is conscious of a slight tap, and this is produced by the foetus, at first pushed upwards, falling suddenly by the force of gravity on the lower part of the uterine cavity, at the point with which the finger is in contact. The sensation communicated is very peculiar and characteristic. Cases are related by Depaul and Cazeaux in which the fundus of the uterus, enlarged and tilted forwards, was felt through the walls of the bladder, and communicated a sensation like that of a foetus within the uterus. The presence of a stone in the bladder might equally give rise to the sensation.

There is another kind of *ballottement* which is performed through the abdominal walls, and which will be described further on.

Although fibrous tumours of the uterus, equally with polypus growing within the cavity, usually prevent the occurrence of pregnancy, or at least cut it short at an early period, the co-existence of pregnancy with either of these conditions is now and then observed: these complicated cases present, as might be expected, peculiar symptoms, and require careful examination and attention for their recognition.

*Mole pregnancy.*—The most important of the conditions comprehended under the above title is that known as the hydatidiform mole. The symptoms are at first those of pregnancy, but no movements of the foetus are felt at the proper time for their appearance; the breasts do not pass through the regular series of changes, and yet the uterus continues to enlarge. The enlargement progresses more, often very much more, quickly than is the case in normal pregnancy. On examining from the vagina the uterus is found enlarged as in pregnancy, and the alterations met with in the vaginal portion may be pretty nearly identical with those peculiar to this condition, but the uterus is harder than is the case in normal pregnancy. It is, as before remarked, larger than it should be, considering the time the catamenia have disappeared. Hæmorrhages are occasionally observed, or an occasional discharge of a watery fluid from the vagina. It is not possible to detect *ballottement* as in regular pregnancy. The os uteri may or may not be open

sufficiently to allow the observer to detect the presence of some of the hydatidiform cysts in the cavity. The physical condition of the uterus, however, as ascertained by vaginal examination, may be such that it is impossible to distinguish it from normal pregnancy; even the fact that ballottement is absent does not positively assure us that there is not a living foetus within the uterus, as already remarked; and the diagnosis must then be guided by the result of abdominal examination, by a consideration of the rational symptoms, and by the history of the case. (See 'Examination of Abdomen,' Appendix C.)

*True hydatids* of the uterus are extremely rare. Rokitansky met with one case. I have met with one also since the second edition of this work was published;<sup>1</sup> but I believe these are the only authenticated cases on record.

*Missed labour*.—Under this term have been classed certain very rare and extraordinary cases in which, pregnancy having advanced nearly to its completion, the foetus has perished, and has been retained in the uterus for a variable time.

*Enlargement due to sanguineous distension of uterus (hæmatometra)*.—Cases in which the uterus is largely distended with blood are rare. In most of the cases of this kind the distension is due to retention of the menstrual fluid, which is unable to escape owing to some abnormal condition of the canal of outlet, from an imperforate condition of the hymen, or congenital closure of the os uteri. In patients who have formerly menstruated, retention of menstrual fluid may be due to one of the following causes: *Occlusion of the os uteri*, in consequence of the use of caustics, or in consequence of *adhesion following on parturition*; diseases of the uterus—e.g. *polypus uteri*, *hypertrophy of the cervix uteri*, *cancer* of the inferior part of the uterus, possibly also pressure of *tumours external to the uterus*.

A sign common to the conditions just described is absence of the catamenia—and care will be consequently necessary to distinguish such cases from pregnancy.

The remarkable symptoms produced by retention of the catamenial fluid have been elsewhere described. With reference to the physical characters of the tumour in the cases now before us, it is elastic, rounded, giving evidence of fluctuation, and, if large, this fluctuation can be made evident by simultaneous abdominal and vaginal examination.

*Cases of hydrometra* are rare. The hydrometra is usually present in women beyond the climacteric age; the enlargement is of slow growth, giving rise to few symptoms. There are, however, occasional severe labour-like pains, which are due to contractions of the uterus.

*Purulent collections in the uterus*.—The uterus may be distended with pus or with a puriform secretion, which may be considerable in amount.

*Physometra*.—Here the uterus is enlarged from the presence of gas within its cavity. This disease is very rare, but the enlargement due to it may be very considerable. Escape of gas from the vagina is no evidence of its existence.

*Tubercle of the uterus* is a very rare disease. The enlargement may be considerable. Attacking the mucous membrane in the first place, the cavity of the uterus may at a later period become 'filled by a purulent pulpy fluid' (Farre), and thus the uterus becomes enlarged in another way.

<sup>1</sup> *Obst. Trans.* vol. xii. p. 237.

In cases of enlargement of the uterus due to any of the causes considered up to the present point, the tumour is to the touch more or less soft or elastic, or conveying an impression that there is fluid within. The next class of cases are those in which the enlarged uterus is hard and firm and resistant. The conditions which may under such circumstances be present, and between which we have to distinguish, are the following :—

Fibrous tumour of the uterus.

Fibrous polypus within the uterus.

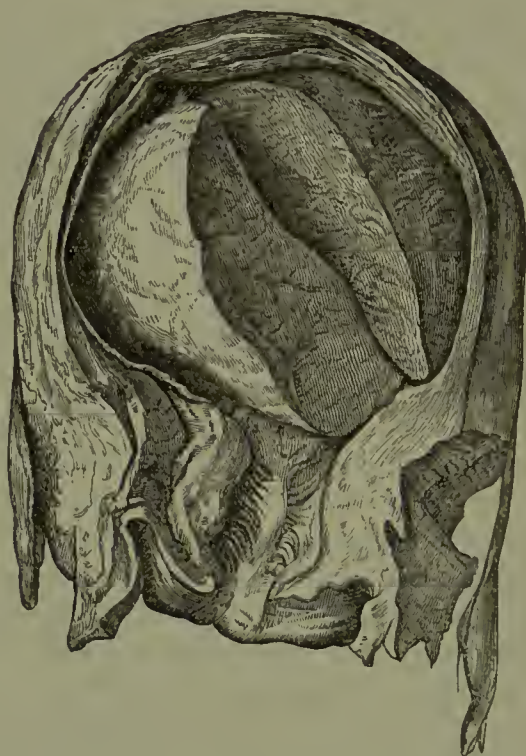
Cancer of the body of the uterus.

Chronic enlargement or hypertrophy of the uterus.

These different conditions are, with the exception of cancer of the uterus, all more or less chronic in character. Each of them may be attended with more or less profuse losses of blood.

*Fibrous tumours and fibrous polypi of the uterus.*—Whether the

FIG. 205.<sup>1</sup>



tumour be in the wall of the uterus or in its cavity (see fig. 205), the uterus is equally hard and resistant externally. In the case of a polypus, the position of the uterus is more symmetrical, whereas a large fibrous tumour growing in the walls gives rise to distortion of the organ. The os uteri may be alike in the two cases—it may be open or closed : in the case of polypus, however, it is more generally open, so as to admit the point of the finger, and frequently a portion of the surface of the polypus can be felt within the os, even if it be not found projecting into the vaginal canal. In some cases it is impossible to ascertain whether the case be one of fibrous tumour or fibrous polypus, until after dilating the os uteri artificially, as first practised by Sir J. Y. Simpson.

<sup>1</sup> Fig. 205, showing an intra-uterine fibrous polypus, is drawn from a preparation in the Museum of University College.



*Cancer of the fundus uteri.*—The diagnosis of cancer in this position, from polypus, chiefly turns on the rate of progress of the case, unless recourse be had to artificial dilatation of the os for the purpose of exploring the interior of the uterus, and thus obtaining further information. The body of the uterus may become affected secondarily, and so enlarged, but the condition of the os uteri in such cases offers decisive diagnostic data.

*Chronic enlargement or hypertrophy of the uterus.*—An enlargement of the uterus due to this cause is limited in degree; pure and simple hypertrophy never gives rise to considerable enlargement. Hypertrophy of the uterus is an affection which is of a peculiar character; the uterus is thickened, increased in size, increased in vascularity; and it gives rise often to great discomfort from the pain, dragging sensations, feeling of weight, and from the effects of the mechanical pressure on the neighbouring organs. It is usually associated with enlargement and hypertrophy of the vaginal portion of the cervix uteri; and, indeed, the condition of the cervix is the one which more usually attracts attention to the exclusion of the other morbid condition—viz. the enlargement and hypertrophy of the fundus or body of the uterus.

*Enlargement of the Fallopian tube* gives rise to a rounded, somewhat pyriform elastic tumour, which may be felt through the upper vaginal wall. The Fallopian tube occasionally becomes distended—in rare instances very greatly so—by a collection within it of *serous, purulent, or bloody fluid*: the distension may be due to development of the ovum within the canal—*Fallopian, or tubal pregnancy*. The tumour constituted by a distended Fallopian tube is usually of a somewhat lengthened form, resembling in shape a portion of distended intestine. If the whole Fallopian tube be equally affected a tumour of a semicircular, sausage-like form results. The distension may be limited to one or other end of the tube; one or both tubes may be affected.

The tumour, when of Fallopian nature, is rounded, movable, well-defined, separable (usually) from the uterus; situated in the retro-uterine pouch, a little to one side. Fluctuation may be evident in the tumour; it is elastic to the feel. There may or there may not be tenderness on pressure. Difficulty and pain in defæcation, ‘pressure pains’ in various parts, pain in walking—these are the symptoms more often observed.

The tumours with which the distension of the Fallopian tube is most likely to be confounded are—ovarian cystic tumours in their early stage of growth, Wolffian cysts, hydatid cysts, and abdominal pregnancy. When Fallopian pregnancy is present, the course of the affection is different in different cases. Mostly the result is rupture of the tube in the second or third month of gestation, followed by speedy death (generally within twenty-four hours); or the rupture may not then be fatal, the foetus becoming encysted, and growing possibly till the full term of gestation has been reached. Accordingly, when we have to do with a chronic enlargement of the tubes, this latter condition may be dismissed from the consideration. The diagnosis of tumours produced by distension of the Fallopian tube by fluid, from other tumours, will be again considered under ‘Examination of the Abdomen.’

In *extra-uterine pregnancy*, the patient is usually known or suspects herself to be pregnant; the tumour grows continuously and pretty quickly,

the uterus simultaneously enlarges, almost to the same degree as if the ovum were within it. Menstruation is not so constantly absent as in ordinary pregnancy. The os uteri presents the conditions met with in pregnancy. Rupture of the Fallopian tube or of the cyst enclosing the fœtus, escape of the fœtus into the abdomen, and death, are the ordinary issue of these cases, the accident generally occurring before the middle period of gestation has arrived : cases of extra-uterine pregnancy are for this reason not often diagnosticated during life. The fœtus may, however, die and undergo mummification within the tube.

In many of the cases reported as cases of tubal gestation, the condition actually present is defective development of the uterus, this organ being divided into two, and the ovum developed in one cornu of this double uterus. One cornu may be larger than the other ; and when the ovum is developed in the imperfectly formed or lesser cornu, rupture almost invariably takes place ; but when the ovum is developed in the more perfect cornu, pregnancy may proceed normally. Hence we may meet with cases in which the cavity of the uterus does not appear to contain an ovum, but in which a tumour containing an ovum is detected close to it ; and yet the case may not be one of Fallopian pregnancy in the true sense of the word, but of pregnancy in one cornu of a bilocular uterus.

*Abdominal pregnancy.*—In cases of abdominal pregnancy—that is to say, cases in which the pregnancy is abdominal to begin with, or in which it has become so in consequence of the rupture of the Fallopian tube—the ovum may become fixed and encysted at the lower part of the pelvis behind the uterus, and between it and the rectum, and may in this position give rise to a tumour of a rounded elastic character. Symptoms, such as bearing down behind, pain and discomfort in the pelvis, show themselves earlier when the case is not one of primary Fallopian pregnancy. The woman, from her sensations and condition, generally thinks herself pregnant. She may suffer greatly from pain during the whole course of the pregnancy.

The diagnosis of abdominal pregnancy, the tumour being in the pelvis, from Fallopian pregnancy, would be difficult at an early period ; but if the pregnancy have advanced beyond the middle period, the presumption is that the fœtus, if not in the uterus, is not in the Fallopian tube. The possible case of double uterus before mentioned should be borne in mind. In a very extraordinary case recorded by Mr. L. R. Cooke, there was simultaneous intra-uterine and abdominal pregnancy, the pregnancy going on to full term.<sup>1</sup>

Occasionally we have to do with a tumour behind the uterus, which is constituted by the *remains* of the fœtus after abdominal pregnancy. These remains, enclosed in a sac which becomes adherent by inflammation to the adjacent peritoneal surface, and which may be recognised by the exploring finger as bones, may continue undischarged for months, or even for years. In a case related by Dr. Brandt,<sup>2</sup> a bony tumour, containing the remains of a fœtus, remained in the abdomen for fifty-four years ; the patient had borne two children naturally since she became pregnant with the fœtus which was afterwards retained. Several other cases of a like character, but of less duration, have been reported.

<sup>1</sup> *Obst. Trans.* vol. v.

<sup>2</sup> *Edin. Med. Journ.* Sept. 1862.

*Ovarian tumours.*—The larger number of cases which come before us, and in which there is a question as to the presence of ovarian disease, are cases in which the tumour has become so large as to invade the abdomen: there is an abdominal enlargement. It thus generally happens that the tumour, when it comes under our notice, is capable of being examined both from the vagina and through the walls of the abdomen.

We are now and then able, in cases of ovaritis or neuralgia of the ovary, to detect the slightly enlarged ovary by digital examination; the ovary being sensitive to the touch, its position is then easily ascertained. In the first stage of cystic tumour of the ovary, however, pain is usually absent, there is generally nothing to suggest the necessity for a digital examination, and it is not common for ovarian cystic tumours smaller than the fist to be diagnosed. If the tumour, together with the ovary, be firmly attached within the pelvis, the symptoms will become developed at an earlier period than when the tumour is pedunculated, and when the freedom of motion it possesses is consequently greater. When an ovarian tumour is small, it usually occupies the utero-rectal fossa, and is not quite in the middle line.

In endeavouring to form a diagnosis as to the nature of a tumour we suspect to be ovarian, our first object should be to exclude the uterus from the consideration. The sound is here of great service (see ‘Examination of Uterus by Sound’). The tumour may, however, be adherent to the uterus; in this case the sound is also of service, by informing us of the direction of the uterine canal, and, further, as to the shape, size, and mobility of the tumour.

In a few cases where the development of the ovarian tumour proceeds rapidly, and the tumour remains in the pelvis behind the uterus, the inconvenience and distress which are produced are so considerable as to create greater difficulty as regards the diagnosis; micturition and defæcation are seriously interfered with, and severe pains in the pelvis or in the lower extremities are experienced.

In cases of extra-uterine pregnancy, when the cyst is situated low down in the pelvis, the tumour in its roundness, elasticity, and other physical characters somewhat resembles that produced by an ovarian tumour. From hydatid cysts growing in the peritoneal cavity low down, small ovarian tumours would be probably distinguished with difficulty. The hydatid cysts are usually more firmly fixed, and move with the vaginal wall; small ovarian tumours are usually movable and single, unless indeed in cases of double ovarian disease: whereas hydatid cysts attached to the pelvis in the neighbourhood of the vaginal canal are usually two or three in number.

The tumour produced by peri-uterine hæmatocele differs from ovarian tumour—first, in its shape, which is usually not globular, as is the case in ovarian tumour; secondly, in its relations, it being less easily definable and separable from the adjacent parts than ovarian tumours; thirdly, in regard to the accompanying or preceding symptoms; fourthly, in respect to its want of mobility as compared with ovarian tumour.

Abscesses, or plastic effusion, the result of inflammation of various kinds, might, under certain circumstances, be confounded with ovarian tumour. The history of the case should, under these circumstances, be carefully looked into, when its real nature will become at once apparent. Lastly must be mentioned the possible case of two tumours being found in the pelvis.



It occasionally happens that pregnancy and ovarian disease are observed simultaneously.

We have now to consider those cases which are, clinically speaking, more common, and in which the tumour felt is *much larger* than this, so as to more or less completely fill the pelvis. There may be present a very large ovarian tumour, and yet comparatively little direct evidence of its presence may be obtained by digital vaginal examination alone; for the tumour may have escaped altogether from the pelvis, dragging up with it the ovary and part of the broad ligament, to become a tumour nearly completely abdominal. We have now, however, to deal with those cases in which the ovarian tumour is still wholly or in part in the cavity of the pelvis, and to point out the diagnosis of the tumour from others with which it may be confounded.

A large tumour of ovarian nature occupying the pelvis necessarily exercises an influence on the surrounding organs. Thus the uterus is pushed to one side, or dislocated in various directions; it may be pushed downwards or forwards by the tumour, or it may be stretched and extended, so that the cavity is materially lengthened. The most important condition from which ovarian tumour is to be separated is enlargement or tumour of the uterus; this distinction is not unfrequently attended with some degree of difficulty. The first point to be made out is the position of the cervix uteri, and, this being ascertained, it is in most cases easy to decide whether the tumour present be constituted by the enlarged uterus or by a tumour separate and distinct from this organ. The most reliable distinction between an enlarged uterus and an ovarian tumour is the fact that, in the former case, the cervix uteri is in the median line, and an equal portion of the tumour is on each side of it; whereas, in the other case, the cervix uteri is on one side, out of the middle line, and the mass of the tumour lies to one or other side of this part of the uterus. Even this is likely, however, to mislead. When the uterus is considerably enlarged (by pregnancy, *e.g.*), the cervix may be high up, and difficult to reach in either case; but when a large ovarian tumour is present, it is usually thrust out of the middle line of the body. In the case of pregnancy far advanced, the vaginal portion of the cervix would be altered also in other ways still more characteristic. It may happen, however, that enlargement of the uterus from pregnancy and ovarian tumour coexist in the same patient; in such a case the diagnosis would be cleared up by circumstances subsequently observed. If the tumour become pedunculated at an early period, it soon becomes abdominal, and there is less evidence of its presence afforded by a vaginal examination; but if it be sessile this change does not so readily take place, and the tumour may be moulded, so to speak, below to the cavity of the pelvis, while it may at the same time spread upwards above into the abdomen.

When the ovarian tumour is large, or, at all events, when a considerable portion of such tumour occupies the pelvis, it may be confounded with retroversion of the gravid uterus, as well as with enlargement of the uterus of other kinds. In retroversion of the gravid uterus, the cervix uteri is thrust upwards and forwards, and the fundus uteri forms the tumour which presses downwards in the vagina. Such a position of the cervix uteri is rare when ovarian tumour is present.

Ovarian tumours, so large as to occupy the pelvis, can hardly be confounded with large fibrous tumour of the uterus. The ovarian tumours

have greater elasticity than is the case if fibrous tumours be present, and the growth is much more rapid.

The diagnosis of the *nature* of large ovarian tumours has been considered in the chapters on 'Diseases of the Ovaries.'

*Other cystic growths in the pelvis.*—The cysts of the broad ligament (Wolffian cysts), which generally do not attain a size greater than that of an orange, may greatly exceed this in size. Their diagnosis is obscure, and chiefly rests on the chronic course of the affection.

*Osseous or other solid tumours growing from the pelvic walls.*—There are a few cases on record, in which osseous tumours—exostoses—have been found growing from the walls of the pelvis, and forming masses of various sizes and shapes. The diagnosis of the nature of such a tumour would not probably be attended with great difficulty. Its growth is slow, it is necessarily hard and firm, and it is immovable. There is a condition, also rare, which might be mistaken for it, viz. projection of the body of the lowest lumbar vertebra forwards into the cavity of the pelvis, due to disease of the lumbosacral articulation; this disease being the result of injury, or simply constitutional.<sup>1</sup>

Cancerous growths from the inner surface of the ilium have been noticed. Kiwisch states that he saw a patient in whom a mass of this kind, of the size of a bead, in its shape and position resembled an ovarian tumour. Hard fibrous tumours are now and then witnessed growing from the sacro-iliac symphysis into the pelvic cavity.<sup>2</sup> Denman relates a case in which an excrescence of a firm fatty substance projected from one side of the upper part of the sacrum, and was so large as nearly to fill the pelvic brim. In Dr. D. D. Davis's work<sup>3</sup> are related two very remarkable cases, in which large fibrous tumours were found growing from the floor of the pelvis, and occupying this part of the pelvis so completely as to interfere with delivery.

The diagnosis of these tumours growing from the pelvic walls from tumours of the viscera might present some difficulty. The object would be to determine the point at which the tumour grew, and, unless the tumour were of considerable size, this would be comparatively easy. Cases of the kind above alluded to are extremely rare.

<sup>1</sup> See Dr. Barnes's exhaustive essay on Spondylolisthesis in *Obst. Trans.* vol. vi.

<sup>2</sup> Kiwisch. *Klin. Vortr.* Bd. II., edited by Scanzoni, p. 326.

<sup>3</sup> *Principles and Practice of Obstetric Medicine*, vol. i. p. 142.

## C.

## DIAGNOSIS OF ABDOMINAL TUMOURS INCLUDING PREGNANCY. EXAMINATION OF THE ABDOMEN.

Methods of Examination.—Position of the Patient during Examination.

ENLARGEMENT OF THE ABDOMEN.—Results of Inspection as to Diagnosis of Nature of Enlargement—Palpation; Discovery of a Tumour; Percussion; Obscurity produced by Fatty Distension.

PRESENCE OF FLUID.—Various causes; Ascites, Ovarian Dropsy, Ascites with Tumour—Diagnosis of these—Extreme Distension of Bladder.

GASEOUS DISTENSION.

Cases simulating Presence of a Tumour.

Tumours traceable into the Pelvis; Enumeration of these: Tumours traceable into Pelvis more rarely met with; Brief Description of these; Tumours not traceable into the Pelvis; Enumeration.

Diagnosis between Enlargement of the Uterus from Pregnancy or otherwise; Ovarian Tumours and Distension of the Bladder; Particular Examination of the Signs of Pregnancy.

Confirmatory Signs of presence of Pregnancy.

For clinical purposes, it is usual to divide the abdominal surface as follows: The portion of the abdomen above a horizontal plane passing through the anterior extremities of the tenth rib on either side, is the *epigastric region*, the lateral portions of which are the *right and left hypochondria*. The *umbilical region* is bounded above by the lower limit of the epigastric region, and below by a line passing between the anterior superior spinous processes of the iliac bones on either side. The *hypogastric region* comprises that portion of the abdomen situated below the line last mentioned. The inferior boundaries of this region are the ossa pubis, and Poupart's ligament on each side.

The *methods* of examination which we employ in investigating the condition of the abdomen are—1. *Inspection*, by which we are made cognisant of the size and shape of the abdomen, the condition of the integuments covering it, etc. Measurement of the abdomen belongs to this division of the subject. 2. *Palpation*, by means of which we ascertain the presence of varying degrees of resistance, hardness, softness, and the like, of the abdomen generally, or of different parts of the same, and are thus enabled to correct erroneous impressions conveyed by inspection alone. Under this head is included *fluctuation*, a physical sign of the presence of fluid. 3. *Percussion*, by the assistance of which we are able to distinguish between tumours or enlargements depending on the presence of solid bodies, and distension by air or fluid. 4. *Auscultation*, in which the sense of hearing is employed for the detection of certain sounds. 5. A combined vaginal



and abdominal examination by means of palpation over the hypogastric region, while the finger of the other hand is within the vagina, or with the uterine sound within the uterus. In the diagnosis of pelvic tumours of doubtful nature, this combined examination is often of the greatest possible service.

All these methods of examination are not employed in all cases. Inspection, palpation, and percussion, combined, are the methods of examination most commonly employed, and in a few cases we find in the employment of auscultation a means of arriving at a conclusion which other methods do not afford.

#### ENLARGEMENT OF THE ABDOMEN.

The causes of that enlargement may depend on a morbid or altered condition of some one of the generative organs, or it may not; it is necessary to start with no preconceived view of the case. The principle is to take nothing for granted, to know for ourselves, and not to accept anything as reliable which only comes to us second-hand.

*Position of the patient during the examination of the abdomen.*—The patient should be placed, lying on the back, on a firm unyielding couch or bed, the shoulders somewhat elevated, the knees a little drawn up so as to relax the abdominal parietes; the whole body in a state of absolute repose. It is sometimes desirable to engage the patient in conversation, in order to prevent a kind of involuntary contraction of the recti muscles, which is often present, and which interferes materially with the attainment of the object desired.

If auscultation is to be practised, the stethoscope must be applied to the skin, or fallacies are likely to arise. In many cases, an inspection of the skin itself is desirable. It is best, however, to commence the examination without entirely uncovering the abdomen, and to obtain thus a general idea as to the shape and size of the same, the presence of tumour, and the like. Lastly, before undertaking a regular examination of the abdomen, the contents of the rectum and of the bladder should be evacuated.

*Is the enlargement real, or only apparent, or assumed for purposes of deception?*—Some patients, desirous of being thought pregnant, or for other reasons wishing to impose upon us, can acquire the power of projecting the abdomen forwards, so as to simulate the enlargement due to pregnancy. This arching of the abdomen is effected by sharply bending the vertebral column in the lumbar region; and when patients presenting this factitious enlargement are made to lie down, on placing the hand over the centre of the loins a corresponding hollow is felt there. In a case which came under my own observation, the patient, a young woman about 25 years of age, had been supposed to have an abdominal tumour. On a casual examination, the appearance and general form of the abdomen were strongly corroborative of this supposition; but no tumour could be detected, no resistance was anywhere felt, and the tympanitic sound, on percussion, was decisive as to the correctness of this negative view of the case. The nurse in attendance directed my attention to the condition of the back, and it was then found that the patient was affected with angular, and also very slight lateral, curvature of the spine in the lumbar region, the consequence of an injury received a few years before. Here the arching of the abdomen was real,

but there was no enlargement of the abdomen in the true sense of the word. Then there is a remarkable class of cases in which the abdomen is enlarged, the patient believes she is pregnant, and endeavours to persuade others that this is the case. Anæsthesia is essential in the diagnosis of these cases.

*Size of the abdomen.*—From the mere element of size alone there is nothing very positive to be deduced. The most common causes of extreme persistent enlargement of the abdomen in women are ovarian dropsy and ascites.

If the enlargement be *symmetrical*, affecting the two sides of the abdomen equally, this is in favour of the presence of ascites or tympanitic distension of the intestines. A want of symmetry is usually observed when the enlargement is due to the presence of a tumour, as in cases of ovarian dropsy (generally), fibrous tumour or polypus of the uterus, enlargement and tumour of the liver or spleen, etc. To this general statement there are many exceptions. Thus, in large simple cyst of the ovary, the abdomen is often symmetrically enlarged at an advanced period of the disease. Similarly, ascites, when associated with tumours of the abdomen, often produces, superficially at least, a symmetry in the appearance of the abdomen on the two sides.

When we have to distinguish between ascites and ovarian dropsy, there is a point in reference to the shape of the abdomen which is of assistance, and it is this: that, whereas in cases of ovarian dropsy the enlargement is rounded anteriorly whatever be the position of the patient, in cases of ascites the anterior surface becomes flattened when the patient is laid on the back. This distinction, however, may fail us when, as is sometimes the case, the distension of the abdomen from ascites is considerable in degree.

*Results obtained by palpation.*—The hand is to be spread out flat, so as to bring as much of the palmar surface of the fingers into contact with the abdominal wall as possible. Pressure, slight at first and gradually increased in force, is then made over the whole of the abdominal surface, beginning with the hypogastric region, the general direction of the pressure being towards the vertebral column. One or both hands may be employed in this operation. It is important that the pressure made be at first slight in degree; otherwise contractions of the muscles are produced, and the attempt of the operator will be defeated. Normally, the abdomen offers no resistance to the pressure of the fingers (the patient being placed as above directed), save that produced by spasmodic and involuntary, or intentional contraction of the recti muscles; everywhere the fingers are allowed to sink inwards to a considerable depth, and it is usually possible to touch the vertebral column posteriorly.

*Discovery of a tumour.*—If the abdomen be only moderately distended, and the fingers can be made to sink inwards equally at all points, whether above or below, but especially below, without encountering a hard resistant body, we may pretty confidently predict that no solid tumour is present. When the abdomen is largely distended, however, the case is different; the fingers may in some such cases be made to sink inwards to a considerable depth without encountering a solid resisting body, while such a one is nevertheless present. This now and then happens when the abdomen contains a solid ovarian tumour together with a large amount of ascitic effusion.

Women desiring to frustrate the purpose of the examiner occasionally

have recourse to the expedient of contracting the recti muscles. The practitioner will generally be able to procure the relaxation necessary by engaging the patient in conversation—in extreme cases by inducing anæsthesia, as mentioned above. The contraction is sometimes also purely involuntary. Such cases are extremely perplexing, as will be explained farther on; contraction of the recti muscles may actually simulate the presence of a tumour. In cases of suspected pregnancy, the recognition of the presence of a tumour is of extreme importance; for however positive the other signs of pregnancy may be, they are worth nothing if it can be clearly made out that there is no tumour discoverable in the abdomen. By palpation we are usually able to detect the presence of such a tumour at an early period of pregnancy, and the examination of the discovery of this, or, indeed, any abdominal tumour, should be conducted as follows: The patient should lie as above directed, the rectum and bladder having been previously emptied; the operator, having placed the hand flat on the abdomen close above the os pubis, is then to follow the admirable procedure recommended by Rœderer. This consists in directing the patient to set the abdominal muscles in action by breathing very deeply, the hand being made all the while to follow the movements of the abdominal wall very closely. At the moment when the expiration is completed, the hand comes in contact with the hard, round, ball-like uterine tumour. In the discovery of tumours in the abdomen, which are not otherwise easily detected, this method of examination is quite invaluable. If the tumour be so large as to fill the abdomen, the method in question is of course of no service.

The recognition of a tumour is frequently, especially in cases of pregnancy, made difficult by the presence of a *fatty condition of the abdomen*, which prevents us from ascertaining the presence of the tumour due to the enlarged uterus.

Supposing that by careful kneading of the abdomen at every point no hard tumour is discoverable, if the abdomen be soft, and everywhere non-resistant, allowing the fingers to sink inwards equally at all points, the enlargement not being considerable, it will be evident that the enlargement is not constituted by a solid tumour of any kind; neither can it be caused by a circumscribed fluid tumour (such as encysted dropsy of the ovary, for instance). If, however, the enlargement of the abdomen be *considerable*, the conclusion formed under the above circumstances cannot be so exact and definite. The fingers may be allowed to sink inwards some distance without encountering solid resistance, but there may nevertheless be a solid tumour. Such a condition is met with, as before remarked, when there is a solid or other tumour of the ovary, or a solid tumour of the uterus or of other organs *associated* with ascitic distension of the peritoneal cavity, or, again, when there is a very large unilocular cyst of the ovary occupying the abdomen, and which is not very tense or resistant.

*Results obtained by percussion.*—The middle finger of the left hand, being pressed closely against the abdominal wall, is to be struck by the tips of the fingers of the right hand, sharply but lightly. If a clear sound be elicited, it is evident that there is gaseous distension present; but if the sound be dull, the distension is due to fluid or solid matters. We have in this mode of examination a ready method of distinguishing *gaseous* from *fluid distension*: palpation would give but little assistance in deciding between these



two. When the enlargement is due to the *presence of fat* in undue quantity, percussion affords no decisive results.

When it is a question between gaseous and fluid distension, valuable aid is afforded by the *fluctuation* test. The palmar surface of the fingers of the left hand is pressed closely over one side of the abdomen, and the abdomen is lightly tapped by the fingers of the other hand on the opposite side. When fluid is present between the two points in question, an impulse is communicated through the aqueous medium, and the fingers of the left hand experience a sudden impulse, varying in character with the nature of the fluid and with the degree of tightness of the distension. No impulse of the kind is communicated when there is gaseous distension alone; but when there is an accumulation of fat present, a sensation somewhat resembling fluctuation may be conveyed. This, however, could only deceive an inexperienced observer. The test of fluctuation is only of value when applied by an educated hand. A sensation closely resembling that of fluctuation is sometimes felt when the abdomen is largely covered with fat.

*Results of percussion or palpation doubtful.*—Sometimes the gaseous distension of the intestines is masked by the presence of a thick covering of fat in the omentum or in the abdominal wall, and a clear sound is consequently not elicited on percussion. This combination of slight tympanitic distension with accumulation of fat in the omentum and abdominal parietes is very commonly met with in women about the period of sexual involution, just at that period of life when the activity of the sexual organs is about to terminate; and when it happens that the patient is desirous of becoming pregnant—a not by any means unusual circumstance—the presence of this combined tympanitic and fatty distension of the abdomen—associated, it may be, with amenorrhœa, leads her to suspect that she is pregnant. Some most instructive cases illustrative of the points here set forth have been related by Dr. Gooch.<sup>1</sup> An examination of the state of the breasts and of the vagina must be made if the percussion and palpation results are indecisive, and if there be reasons for suspecting that a tumour is present.

A condition is sometimes met with where the abdomen is enlarged, no actual tumour discoverable, and where the intestines, more protuberant than usual, constitute the enlargement. This condition is met with sometimes during the first two months of pregnancy, while the uterus is yet too small to be felt above the pubes. The persistence for six months or upwards of an enlargement of the abdomen, with no signs of a tumour discoverable, would negative the suspicion of pregnancy.

In some cases, the difficulty experienced in the detection of the tumour, no undue amount of fat being present, arises from the fact that there are *great tenseness and resistance*, the distension being, for the most part, uniform and symmetrical; and the difficulty is greater, because this tenseness and resistance preclude us from exploring beyond the surface of the abdomen. We are unable to determine positively whether a tumour be actually present or not. Here the fluctuation test and the results of percussion only are available.

The result of the examination, conducted in the manner now directed,

<sup>1</sup> See the edition of Gooch published by the New Sydenham Society, pp. 111 *et seq.*

should be to enable the observer to determine whether the enlargement of the abdomen be due to—

- a. Presence of fluid.
- b. Gaseous distension ; or,
- c. Presence of a tumour.

#### PRESENCE OF FLUID.

In these cases there is widespread fluctuation, this being evident over the greater part of the surface of the abdomen.

The conditions between which we have ordinarily to distinguish are—

Ascites ;

Ovarian dropsy ;

Ascites combined with presence of a tumour or tumours ;

Some rare conditions to be presently mentioned, and not included under either of these three categories.

Two conditions somewhat difficult to distinguish one from the other are *ascites*, and a *single very large ovarian cyst*. They will be discriminated by attention to the following points :—

First, as regards the *size of the abdomen*. This gives us no reliable information.

*Shape of the abdomen*.—In ascites, the abdomen becomes flattened when the patient lies down, while in ovarian disease this flattening is not observed. In ovarian disease largely distending the abdomen, the floating ribs are pushed outwards ; the thorax is thus made to assume a peculiar conical shape. The enlargement of the abdomen in ascites is generally symmetrical, whereas in ovarian disease there is usually a swelling or prominence, more decided on one side than the other. This latter is a distinction which will not at all hold good when there is ovarian dropsy with only one very large cyst. The shape of the abdomen, speaking generally, is more ovoid in ascites, rounder in ovarian disease.

The *condition and appearance of the skin* vary usually in the two cases. In ascites, there is generally a marked enlargement and distension of the superficial veins, wanting in the other case. This is, however, not to be depended upon. I have seen the *lymphatics* enormously distended in an advanced case of ovarian disease, but this condition of the lymphatics is probably the exception rather than the rule. Moreover, I have seen a precisely similar condition of the lymphatics in a case where the bladder was very largely distended from the retroversion of the uterus, the uterus being the seat of fibroid growths. The lower part of the abdomen presented, in this latter instance, a most remarkable appearance ; there were large cord-like, sinuous lines running upwards, most of them in the direction of the umbilicus. It would not be possible to arrive at any definite conclusion as to the nature of the enlargement, either from the condition of the veins, or from the condition of the lymphatics covering the surface.

There is *fluctuation* both in ascites and in ovarian dropsy. In ovarian dropsy it is often very indistinct, and where the abdomen is distended by two or more large cysts, it is unequal at different parts of the abdominal surface. This inequality is of course not noticed in ascites. In cases of ascites, fluctuation is perceived equally well, whatever may be the points

between which it is sought for. If, however, there be one very large cyst, the same equality is observed in cases of ovarian dropsy. In both cases, the degree of facility of perception of this sign varies extremely, this being dependent on the degree of distension present.

*Results of percussion.*—In cases of ovarian disease there is a dull sound on percussion, which may, if the cyst be large enough, extend up to the ensiform cartilage, while there is a clear sound on percussion in the flanks, where the intestines are situated. In ascites, on the other hand, the intestines float on the surface of the liquid, and over the epigastric region there is a clear intestinal note on percussion, while in the flanks there is dulness on percussion. The only exception to this latter statement is when the stomach and intestines happen to be glued down, and prevented rising and so floating on the ascitic fluid, by presence of adhesions. When the ovarian tumour is *associated with ascites*, there may be dulness above in the epigastric region, and in the flanks also.

FIG. 206.<sup>1</sup>



The test as regards dulness or clearness on percussion in the flanks is not an absolute one; for there is nothing to prevent what I have two or three times witnessed, viz. the occurrence of gaseous distension and enlargement of the ascending or descending colon; and supposing such distension to be present in conjunction with ascites, there would be a clear note on percussion in the flanks.

Another distinctive mark between ascitic distension and that due to ovarian disease is the result of percussion practised over the abdomen in *different positions of the patient*. In ovarian cystic disease, the result of the percussion is the same whether the patient be lying on the back or on the side; but in ascites the fluid is generally at liberty to fall by the force of gravity according as the body is placed, and a particular part of the abdominal

<sup>1</sup> Fig. 206 (from Bright) shows the general aspect of the abdomen in a case of great distension from ovarian dropsy.



surface might be clear and resonant on percussion with the body in one position, and dull when it is placed in another.

The previous history of the case generally offers almost conclusive data if rigorously scrutinised. The fact that the abdominal enlargement began from below, on one side, and with a circumscribed actual perceptible tumour, points to ovarian disease; the absence of such a history would be in favour of ascites. The 'one-sided' origin of the tumour is not, however, so often to be made available as is usually stated. In such cases, as observed by the late Dr. Bright, 'the growth of this tumour is, on some occasions, so unperceived, that, though it may have originated on one side, it has already risen into the pubic, and even the umbilical region; and when the medical man is first consulted, its lateral origin is with difficulty ascertained. At other times the enlargement is at first slow, and after some indefinite period the increase takes place suddenly, so that in a few months the whole abdomen presents to a common observer the size and appearance of pregnancy far advanced.'<sup>1</sup>

FIG. 207.<sup>2</sup>



Again, as regards the history, in ovarian disease the enlargement is more often chronic—slower in progress than is the case in ascites; it is, in the case of ascites, attended with greater disturbance of the general health, and, in the latter case, there are generally to be detected signs of serious organic disease of the heart, of the lungs, of the liver, or of the kidneys. Moreover, dropsical effusion into the peritoneal cavity is more often than not associated with similar effusion (anasarca) in the lower extremities. It is in the last stage of ovarian disease only—that is, of the *kind* of ovarian disease now under consideration, and not including cases of *cancerous* disease of ovaries—that anasarca of the lower extremities is noticed. The dyspnoea produced by

<sup>1</sup> *Clinical Memoirs on Abdominal Tumours*, New Sydenham Society's ed., p. 63.

<sup>2</sup> Fig. 207 (from Bright's work), *jam cit.*, represents a large ovarian tumour, the abdominal covering removed.

large distension of the abdomen in ovarian disease is generally much less considerable than that attendant on ascitic effusion, because in the latter case the dyspnoea is often of organic, not mechanical origin.

*Diagnosis of ascites from ascites with a tumour.*—Now and then a tumour is present in the abdomen associated with ascitic fluid, so considerable in quantity, that the presence of the tumour is not discoverable, or, at all events, readily so. Kiwisch alludes to a case of ascites associated with pregnancy, where the operation of paracentesis was performed, and the trochar passed into a gravid uterus. Other instances are mentioned in Montgomery's work. Recorded experience shows that the question is not easy of solution in many cases. Examination of the uterus from the vagina, examination of the state of the breasts, a careful scrutiny of the circumstances preceding and attending the enlargement, become necessary. Pregnancy may be, as is evident from many recorded facts, very easily overlooked unless inquired after. Thus, a patient the subject of ascites, becoming pregnant, would naturally connect the increasing size of the abdomen with increase in her previous disorder; while the absence of menstruation might be set down by the medical attendant to the same circumstance.

In cases of pregnancy combined with ascites, there is often present a dropsical condition of the lower extremities. In advanced cases of ascites, anasarca of the lower extremities is, as is well known, frequently present, and the case might be not unreasonably looked upon (by one not aware at least of the possibility of the existence of pregnancy) as one of ascites simply. Dr. Montgomery relates a case where the abdominal parietes were so exceedingly tense, and the quantity of interposed water so considerable, that the outline of the uterus could not be detected, nor the foetal movements felt, although the patient was seven months pregnant.<sup>1</sup> It is very important to recollect, in all cases where the woman is in a state for having children, and has an enlarged abdomen, that it is not sufficient at some previous period to have established the diagnosis of ascites. The diagnosis must be made afresh from time to time, and the state of the abdomen must undergo regular investigation; and this is more especially necessary if any operative measures, such as tapping, be contemplated. The observer should always make it a practice before going further to demonstrate to himself that the patient is not pregnant.

Ascites may be associated with other tumours. One of the most common cases is perhaps that in which there is an *ovarian tumour together with ascites*. Usually the distension is not so great as to prevent recognition of the tumour. Still it may be so. This association of ascites and ovarian tumour is more generally observed in cases where the ovarian tumour is of a malignant character than where simple cystic disease is present.

*Mesenteric tumour* may be associated with ascites, and may be so situated that it closely simulates an ovarian tumour. In such a case, as I have myself had practical proof, an exploratory incision into the abdomen may be the only means for deciding the nature of the case.

In an advanced stage of the disease, ascites, combined with *hydatid disease of the liver and peritoneal cavity*, may give rise to great distension of the abdomen. The history of such a case, but chiefly the presence of great enlargement of the liver, would point to the true conclusion, or, at all events, would afford indications sufficient to negative the idea that the enlargement of the abdomen was due to disease of any of the generative organs. Where

<sup>1</sup> *Op. cit.* pp. 139, 149, 162.

a tumour is recognisable, the difficulty in diagnosis is necessarily not so great as in the case above supposed.

Lastly, respecting the diagnosis of these cases of extreme distension of the abdomen, where a tumour is suspected to be present, together with ascitic effusion, the operation of tapping renders it easy to substantiate the presence or absence of such tumour. And, in some cases of ovarian dropsy associated with ascites, a preliminary operation of this kind is necessary to enable us more nearly and more conveniently to ascertain the size, position, and relations of the tumour.

*Some rare conditions capable of simulating ascites or ovarian dropsy.*—One of the conditions in question is *extreme distension of the bladder* from prolonged retention of urine. A case will be found mentioned by Dr. Gooch,<sup>1</sup> in which retention of urine was associated with pregnancy, the distended bladder assuming a flattened form, owing to the resistance of the gravid uterus behind it; there was fluctuation, and the case was, in fact, assumed to be one of ‘dropsy.’ The case was originally related by Dr. Lowder, who stated that paracentesis was performed, that the trochar passed through the bladder, through the wall of the uterus, and even into the head of the child. Here the mistake probably arose from the presence of fluctuation over a considerable surface; but if percussion had been practised near the lumbar regions of the abdomen, or even the suspicion of pregnancy had crossed the mind of the observer, the mistake might probably have been avoided.

In some very rare cases, *extreme distension of the uterus by fluid, associated or not with pregnancy*, has simulated ascites.

*Cystic disease of the abdomen, not of ovarian character.*—In some rare cases, large cystic growths (of the broad ligament) have been met with simulating ovarian dropsy. It is just within the limits of possibility that such a case might, the cyst being of large size, resemble one of ascites.

### GASEOUS DISTENSION.

When the greater part of the abdominal surface is tympanitic, the distension in question generally proceeds from the presence of gas in the intestines, in the stomach, or both. This form of *tympanitis* is witnessed in the advanced stage of fevers of various kinds, in puerperal fever, and under other circumstances. The comparatively sudden occurrence of the enlargement, the perfectly normal state of the abdomen previously, and the results of physical examination generally, render the diagnosis a matter of no difficulty.

### CASES SIMULATING PRESENCE OF A TUMOUR.

Cases of this kind will be found recorded in the work of Dr. Montgomery. One of the most extraordinary was the case of a woman who, in the year 1828, was operated upon in Berlin, under the idea that the case was one of extra-uterine pregnancy: on cutting into the abdomen no tumour and no enlargement of any viscus was detected. The abdomen has been opened with the intention of removing ovarian tumours, no tumour of any kind being discoverable. And the case is very far from uncommon in which women are supposed to be pregnant, and to have a tumour in the abdomen, when the event completely falsifies the diagnosis. In many cases, where such mis-

<sup>1</sup> Quoted also by Montgomery, *op. cit.* p. 324.



takes have been made, it is easy to see that sufficient care was not taken in substantiating the presence of a tumour, in defining its limits, etc. ; but in some instances the appearances present were evidently calculated to mislead.

*So-called 'phantom' tumours.*—The cases which present most difficulty are those in which an abdominal tumour is simulated, in hysterical women, the abdominal muscles being contracted in such a manner as to give the impression of a tumour to the hand of the observer. The tumour has this peculiarity : 'If,' as Dr. Montgomery remarks, 'the patient can be made to forget that she is under examination, by completely diverting her attention, as by keeping her in conversation on some subject unconnected with her own case or state, while, at the same time, the hand is kept pretty firmly pressed on the abdomen, the tension gradually relaxes, the size diminishes, and all sensation of a tumour is lost.'<sup>1</sup> Change of position may succeed in producing this disappearance of the tumour ; but the reality of the tumour is most completely tested under the influence of an anæsthetic. The hand is then allowed to sink inwards at the point where previously the tumour appeared to be situated. When the abdomen is covered with an undue quantity of fat—a condition often also associated with presence of fat in the omentum—the difficulty the observer experiences in satisfying himself that no tumour is actually present becomes more considerable ; and atherisation may, in such cases, be quite essential to the making of the diagnosis. It is not absolutely certain how the deceptive appearances of a tumour are actually produced, but it is probable that, in most cases, they are due to partial contractions of the recti abdominis muscles, a particular segment of the muscles being in a state of chronic contraction, and forming a rounded mass under the hand.

Having cleared up any doubt as to whether there be actually a tumour present or not, the further steps to be taken will now be considered.

It will be found convenient for purposes of diagnosis to begin with determining, by physical examination of the tumour, under which of the following heads it should be placed ; and, this elementary diagnosis having been made, to pursue further inquiries in the direction thus necessarily indicated : (A) The tumour proceeds from, or is connected with, the pelvic cavity ; (B) The tumour is not connected with, or distinctly traceable into, the pelvic cavity.

(A) TUMOURS WHICH ARE TRACEABLE, OR MAY APPEAR TO BE TRACEABLE,  
INTO THE PELVIS.

Enlargement of the uterus, from pregnancy, fibrous tumour, etc.

Ovarian cystic disease or tumour.

Peri-uterine hæmatocele.

Distension of the urinary bladder.

Pelvic cellulitis and abscess.

Fæcal tumour.

The more uncommon causes are—

Enlargement and distension of Fallopian tube.

Extra-uterine pregnancy (usually).

Sub-peritoneal cysts.

Cysts or solid tumours in omentum.

<sup>1</sup> *Op. cit.* p. 398.

Fibrous, cancerous, or osseous growths from pelvic bones.

Hydatid tumour.

Enlargement of spleen (when the spleen is so enlarged as to extend into the pelvis).

Cancer of peritonæum.

Cysts or tumours connected with the kidneys.

Distension of ureter.

Enlargement of liver.

Retained encysted foetus—which may also come under the next head (B).

Cysts of the broad ligament (Wolffian cysts).

(B) TUMOURS NOT TRACEABLE, NECESSARILY SO AT LEAST, INTO  
THE PELVIS.

Disease of the liver, giving rise to enlargement of the organ, hydatid tumour, etc.

Enlargement of the spleen.

Hydatid tumours in cavity of abdomen.

Fæcal tumour.

Fibrous tumour of the uterus, pedunculated.

Cancer of peritoneum.

Fat in omentum.

Enlargement, etc., of kidneys.

Movable kidney.

It will generally be found comparatively easy to determine the series to which the tumour before us belongs. Commencing at the most prominent part of the tumour, and pressing gently but firmly through the abdominal parietes on its surface, the continuity of the surface in question is to be traced in all directions, and the limits of the same accurately made out. Thus, a tumour, the most prominent part of which is just above the umbilicus, may be traced upwards from that point to the margin of the ribs on the right side, being at that point not separable from the liver; while, on endeavouring to trace it downwards, it may be found to cease abruptly at the umbilicus, or a little below it. Such a tumour would belong to the second of the above series. The fact that the tumour ceases at the point indicated may be made out simply by palpation, the abdominal wall being lax or thin; but palpation alone may not be sufficient to establish this when the opposite state of things prevails, and percussion is then of service. Thus—to take again the above illustration—the tumour being hard, firm, and dull on percussion superiorly, the fact that at a particular point this dulness is exchanged for a tympanitic note, this tympanitic note being identical with that obtained over the lower part of the abdomen generally, would lead to the desired conclusion as to the lower limit of the tumour. Again, in the case of a tumour presenting the fluctuation sign, the limit of the fluctuation would of course indicate the limit of the tumour; it would be necessary to recollect that, in the case of a tumour of a composite character, fluctuation might cease at a particular point without this necessarily indicating that this point was the boundary of the tumour. And with reference to the particular sign, fluctuation, there is this general caution to be given—

that it by no means follows, because a tumour contains fluid, that fluctuation should be perceivable : when the walls of the cavity containing the fluid are very tightly stretched, fluctuation may be entirely absent. Lastly, in determining whether the tumour proceeds or not from the pelvis, the history of the case may give important information. This information, however, is very often found to be either wanting, or so devoid of accuracy as to be practically worthless.

#### TUMOURS MORE RARELY MET WITH.

##### (a) *Traceable into the pelvis.*

*Enlargement of the liver.*—In a case of this kind, careful examination shows a perfect continuity of the tumour with the liver above. The tumour is hard, resistant. The history of the case is agreeable with the theory that the tumour originated in the liver. But although simple enlargement to a considerable extent is rare, cases are not so uncommon in which a tumour growing from the liver extends downwards even as far as the pelvis, or which is, at all events, apparently continuous with tumours which do so extend into the pelvis (see next paragraph).

*Hydatid disease of the liver* may give rise to a tumour extending from the liver into the pelvis, and the abdomen may become enormously distended by the parasitic growth in question. In a very remarkable case related by Dr. Bright,<sup>1</sup> the hydatids formed 'round, well-defined elastic tumours' all over the abdomen, and in places forming elevations visible to the eye. The patient's age was 14. The hydatids were first developed in connection with the liver.★ The first sign of disease was the feeling a hard lump in the right side below the false ribs. The disease rapidly progressed, general emaciation and constantly increasing abdominal enlargement being the chief symptoms. There was dulness on percussion all over the abdomen, except at one part, just to the left of the umbilicus. It would seem difficult to avoid recognising the nature of an abdominal enlargement due to this cause ; an ovarian tumour reaching to the liver, and presenting rounded projections due to the contained cysts, might be possibly mistaken for it by an inexperienced observer. But an ovarian tumour growing to such a size as this would generally have a history essentially different. The ovarian tumour would have grown from below upwards, and at some previous time would have been limited to the lower part of the abdomen. This distinction may fail in some cases. The physical characters of an ovarian tumour of this magnitude will be given further on. Here also may be mentioned an interesting case related by Dr. Bright, in which the tumour present was due to hydatids, but closely simulated an ovarian tumour. The woman was 54 years old, and presented an enlargement of the abdomen, dating from nine or ten years previously, but only very obviously noticed for three years. The abdomen 'was greatly enlarged ; the upper two-thirds occupied by an irregular tumour, indistinctly fluctuating, and, in various parts, somewhat tender on pressure ; the lower part of the abdomen was also occupied by a fluctuating tumour, apparently a large cyst arising from the pelvis. The

<sup>1</sup> *Op. cit.* p. 30.



intervening space was soft, and was the only part which gave a clear or tympanitic sound on percussion.' A drawing accompanies the description of the case. 'From its peculiar and irregular form,' Dr. Bright concluded 'that it consisted either of hydatids extensively distributed, or was an ovarian tumour; and if the latter—which, from its very singular form, and more particularly from the existence of the upper portion so separated from the lower, I could scarcely believe—I supposed that it must be one of those complex and malignant forms of disease. . . .'<sup>1</sup> The case turned out to be one of hydatids. There were two large cysts, one above and one below, the upper one incorporated with the liver, and between and in front of the two was stretched the transverse colon. In a case under my observation in University College Hospital, first under my own care and then under Sir William Jenner, considerable doubts as to its nature were dissipated by an exploratory puncture. It was an enchondromatous tumour of very great size. A noticeable feature in this instance was the growth of a portion of the tumour backwards towards the loin, a position which, it may be perhaps stated, is never taken by an ovarian tumour. Cases of this kind are extremely rare.

*Cancerous disease of the abdominal viscera, above the pelvis*, may give rise to a tumour which is found to extend downwards as far as the pelvis. Practically, however, such a tumour can hardly be confounded with any of the tumours with which we are more particularly concerned. In *cancer of the kidney* the lower margin of the tumour would, even in extreme cases, be felt above the brim of the pelvis, unless distension of the abdomen from ascites prevented it. '*Colloid cancer of the omentum*,' says Dr. Walshe, 'spreading like a sort of apron in front of the intestines, gives rise to dull percussion sound in proportion to its extent.'<sup>2</sup> This is a very rare disease. *Cancer of the post-peritoneal cellular tissue*, also a very rare affection, may give rise to a tumour slow in growth, and which may, moreover, grow downwards into the pelvis.<sup>3</sup> The presence of nodules of a cancerous nature, perceivable in the abdominal walls externally, is an important diagnostic sign, although it is one not by any means always observed.

*Enlargement of the spleen*, the organ attaining such a size as to extend into the pelvis—an occurrence which must be very rare—could hardly be mistaken for an ovarian or uterine tumour, if the smallest pains were taken in investigating the history of the case.

*Cysts or tumours connected with the kidneys*.—A case is detailed by Dr. Bright, in which a large cyst containing puriform matter, and connected with the left kidney, simulated disease of the ovary. The patient was married, æt. 34. 'For about three years she had a tumour on the left side of the abdomen; the exact situation of the part at which it commenced is not ascertained, but it appeared to have been sufficiently low down to have excited a suspicion that it depended on the ovary.' After death, 'a large but soft tumour was seen occupying the greater part of the left lumbar and iliac regions.' It was an enlargement of the kidney, and had, when cut into, the appearance of a membranous cyst, the walls of which were an eighth of an inch thick. It contained dirty, discoloured, watery pus.<sup>4</sup> I saw, some

<sup>1</sup> *Op. cit.* p. 13

<sup>2</sup> *Ibid.* p. 310.

<sup>3</sup> *Ibid.* p. 311

<sup>4</sup> *Loc. cit.* p. 223.

time since, with Mr. Scott, a case of very considerable abdominal enlargement simulating multilocular ovarian disease, which proved to be one of cystic disease of the kidney.

Mr. Spencer Wells,<sup>1</sup> in a pamphlet 'On the Diagnosis of Renal from Ovarian Cysts and Tumours,' has described cases illustrative of this important subject, with conclusions based thereon. In one of the cases a cystic degeneration of the left kidney was taken to be a cyst of the left ovary. It was very large, occupied the whole left side of the abdomen, and had been previously tapped, and a quantity of dark discoloured fluid, like pea-soup, removed. The whole aspect of the case much resembled that of ovarian disease, but a cord passed over the middle of the tumour, which was found to be the descending colon. Mr. Wells gives another case of soft cancer of the right kidney in a girl four years old, which had been supposed to be ovarian, but which was rightly diagnosticated. Also a case of pyonephrosis of the right kidney, due to impaction of calculi in the ureter, which was relieved by an abdominal tapping. Regarding the diagnostic data in such cases, Mr. Wells points out that ovarian tumours are generally in *front* of the intestines, renal ones behind them, but this rule is open to exceptions; that discovery of intestine in front of a doubtful tumour should induce examination of the urine, blood, pus, or albumen being generally detected in renal disease; that the intestine may not be recognised as such unless care be exercised; that fluid discharged from a doubtful cyst should be carefully examined for ordinary products; that the renal disease grows downwards, the ovarian upwards; that it is only a very small ovarian tumour with a long pedicle which could be mistaken for a floating or movable kidney.

In cases of *distension of the ureter*, a tumour may be detected on one side near the vertebral column, but it does not appear that such a tumour has ever been confounded with tumour of pelvic origin: ordinarily the circumstances are such that tumours connected with the kidneys or ureters are not confounded with those originating in the pelvis.

*Sub-peritoneal cystic tumour.*—A very rare and exceptional case is that in which cysts situated externally to the peritoneum grow and form tumours capable of simulating ovarian cysts. Such a case is alluded to by Kiwisch.<sup>2</sup> The tumour formed gradually, attained a large size, was repeatedly tapped, and large quantities of fluid evacuated. The patient's age was 20. And the tumour first appeared after suppression of menstruation, the suppression occurring very soon after menstruation had begun. After death, three large tumours—one composed of a large cyst, and the two others of cysts together with fibrous tissue—were found behind the peritoneal membrane, occupying the lumbar and hypochondriac regions, and extending down into the pelvis.

Somewhat analogous to this is a case reported by Mr. Safford Lee,<sup>3</sup> in which a large tumour of the abdomen had existed for twenty-five years. It at last completely filled the abdomen and killed the patient. It was found to have commenced on the left side, just under the pancreas, but below the peritoneum, so that it rested on the posterior walling of the abdomen. A narrow pedicle, six inches long, of the size of a quill, connected it with the

<sup>1</sup> *Dubl. Quart. Med. Journ.* Feb. 1867.

<sup>2</sup> *Klin. Vortr.* bd. ii. (by Scanzoni), p. 327.

<sup>3</sup> *On Tumours of the Uterus, etc.* p. 124.

uterus. It was filled with turbid fluid, balls of fat and hair, calcareous matter, and a mass containing teeth and bones, strongly resembling an imperfect foetus. This appears to have been a case of 'included foetus.'

*Cysts of omentum.*—Mr. Safford Lee reports a case which was under the care of Dr. A. T. Thompson. The patient had been tapped forty-eight times. The tumour began on the right side of the abdomen. After death it was found to have originated in the omentum close by the pancreas, and was attached by a long thin portion to the uterus, but was entirely unconnected with the ovaries. At the upper part of the abdominal cavity, attached to the peritoneal surface, were a number of well-defined cysts containing a clear fluid.<sup>1</sup>

*Retained encysted foetus.*—In some very uncommon cases, the foetus, the product of an extra-uterine pregnancy, dies, having attained a certain stage of maturity, and remains, enclosed in a kind of cyst, in the abdomen of the mother, for a time which varies from a few weeks to many years. The history of these cases is necessarily peculiar and characteristic. The woman states that at a certain time she was pregnant, that the symptoms of pregnancy advanced pretty regularly, that at the time pregnancy should have terminated pains set in, and these, after lasting a certain time, went off, no delivery having occurred, and that the tumour which is felt through the abdominal walls dates from the period in question. Presence of such a tumour is not incompatible with further pregnancy and healthy delivery, instances being known of women bearing mature and healthy children, the mummified body of the extra-uterine foetus still remaining within the abdomen. The tumour in these cases is usually low down in the pelvis, or at all events partially so, and it is usually recognisable by vaginal examination.

*Fibrous, cancerous, or osseous tumours, growing from the pelvic bones inwards,* may give rise to tumours perceivable through the abdominal walls. The firmness of these tumours, their want of mobility, and other physical characters, render their diagnosis from other, more common, abdominal and pelvic tumours easy. They are excessively rare.

Of the conditions which have now been mentioned—viz. enlargement of the liver, hydatid disease of the liver, cancerous disease of the abdominal viscera, or in the abdominal walls, enlargement of the spleen, cysts, etc., originating in the kidneys or uterus, cystic tumours behind the peritonæum or in the omentum, retained encysted foetus, fibrous or osseous growths from the pelvic bones—some are exceedingly rare, others are more common. One distinction between these tumours and those originating in the generative organs is very important, and one which can generally be relied upon, viz., that when the tumour originates in the generative organs, the vaginal examination shows some displacement, or some abnormal condition, of the uterus, or is the means of detecting a tumour in the pelvis. This negative evidence is of great weight.

The tumours next to be considered are met with rather more frequently.

*Tumours of the Fallopian tubes.*—These conditions have been already alluded to (see p. 682). When they attain a certain size, they are perceivable also by examination of the hypogastric region of the abdomen, and even when they are of no considerable size, they may be felt in this position if the abdominal walls be thin and non-resistant. Tumours of the Fallopian

<sup>1</sup> *On Tumours of the Uterus, etc.* p. 123.



tubes exceeding the size of an apple are rare, but it should be known that they *may* attain so large a size as to be capable of being mistaken for ovarian tumours. The tumour is generally elongated or pyriform in shape, and movable, and there may be a tumour on both sides. The position in which the tumour is felt is just above the groin—behind and below Poupart's ligament. The history of the progress of the tumour is generally diagnostic, to a certain extent, of its nature. Cases of tubal pregnancy are very rarely diagnosticated, inasmuch as rupture of the tube takes place before anything wrong is suspected; and if the pregnancy proceed to a later period, the case is usually looked upon as one of normal gestation. There are no physical signs by which a case of very extreme dropsical distension of one tube could be certainly distinguished from an ovarian tumour. In such a case the history would probably throw some light on the subject.

#### TUMOURS MORE RARELY MET WITH.

##### (b) *Not traceable into the pelvis.*

It will not be necessary to enter at any length into the consideration of the diagnosis of tumours in the abdomen not traceable into the pelvis, inasmuch as the subject is one scarcely coming within the compass of the present work. There are, however, some tumours of the abdomen which may not be traceable into the pelvis, and yet have their origin in the generative organs, concerning which some mention is required.

*Fibrous tumours of the uterus* sometimes become pedunculated, and the pedicle elongated to such an extent that they enjoy great mobility and freedom of movement. It might be difficult to say of such a tumour very positively whether it belonged to the uterus or to the ovary.

The fibroid tumours of the uterus, when growing from its peritoneal surface, may become detached from the organ, and remain fixed at any part of the abdominal parietes. When so fixed and separated from the uterus, the diagnosis of the nature of such a tumour would be necessarily difficult. It appears that the ovary also may become separated from its attachment by twisting of or dragging on the Fallopian tube, and that it may similarly become attached to some other part of the abdominal wall. The occasional occurrence of separation of fibroid tumours or of the ovary, from their normal attachment, is a circumstance to which attention has been directed by Rokitansky<sup>1</sup> and Turner.<sup>2</sup>

A pedunculated fibroid tumour of the uterus might be confounded with *movable kidney*, the rounded shape and the firm feel of the tumour being observable in both cases. The diagnosis of a fibroid tumour, detached and transplanted as above pointed out, would not be easily made out.

Cases in which the *omentum* is the seat of a considerable deposition of *fat* occasionally create embarrassment as to their diagnosis. It might be difficult to ascertain whether the tumour perceivable was actually traceable into the pelvis or not, owing to the usually associated fatty condition of the abdominal parietes; such tumours are most liable to be confounded with pregnancy, as already pointed out.

<sup>1</sup> See Schmidt's *Jahrb.* vol. ex. p. 306.

<sup>2</sup> *Edin. Med. Journ.* Feb. 1861, p. 698.

An exceptional case here requiring mention is the presence of a tumour due to an *extra-uterine foetation*, and so situated as to give the idea that it is not traceable into the pelvis.

A difficulty is more frequently experienced in determining whether the tumour proceeds from the pelvis or not in cases where solid tumours of the uterus or ovary are associated with *ascites* to an extreme degree. This class of cases has already been alluded to, in speaking of the diagnosis of the causes of considerable enlargement of the abdomen with the fluctuation sign present.

Some cases of *fecal tumour* may give rise to difficulty when the tumour is situated low down. The observations already made on the diagnosis of fecal tumour here again apply.

*Cancerous or cystic disease of the omentum*, forming a tumour of considerable size, may closely simulate tumour originating in the pelvis. Ovariectomy has been attempted in some such cases. The surest means, perhaps, of avoiding similar errors of diagnosis in future is to indicate, as has now been done, the possibility of their being committed. If ascites were superadded in such a case, the difficulty would be greater. Attention to the mode of growth of the tumour would be most likely to give satisfactory information.

In all cases where doubt exists as to whether the tumour extends into the pelvis, the history of the case is of great consequence. It generally happens that tumours of ovarian and uterine origin do, at some period or other of their growth, give rise to what may be termed pelvic symptoms—difficulty in defæcation or micturition, pains in the lower limbs, etc. etc., and absence of such pelvic symptoms, therefore, would be against the theory of pelvic origin of the tumour, though on these grounds alone it would not be safe to come to a conclusion. We should, however, certainly hesitate to perform ovariectomy in a case where pelvic symptoms had been absent from first to last, unless there were very good grounds for believing the tumour to be ovarian.

#### TUMOURS TRACEABLE INTO THE PELVIS, MORE COMMONLY OBSERVED.

*Pelvic cellulitis and abscess.*—A tumour rising up, sometimes a considerable distance, above the pelvic brim, may be caused by inflammation originating in the pelvic cellular tissue, generally following labour, or abortion, or wounds or injuries of the pelvic viscera. (See ‘Pelvic Cellulitis.’)

*Peri-uterine hæmatocele.*—The tumour arising from this may present features very much like those observed in pelvic cellulitis. The diagnosis has been considered in the chapter on ‘Peri-uterine Hæmatocele.’

*Fæcal tumour.*—A tumour due to feces accumulated at any particular part of the intestinal tract may extend into the pelvis and simulate a tumour growing from that part. A fecal tumour is known by its irregular shape, by its doughy feel; it is dull on percussion at one part, and clear at another (from presence of flatus); the state of the bowels also is peculiar, great costiveness being present; and, moreover, the tumour disappears, or partially so, on administration of purgatives. Dr. Walshe gives an important caution, however, in reference to the uncertainty of such deduction,

viz. that occasionally the solid matters cling to the wall of the bowel, leaving a passage in the centre; the tumour remains, and is a faecal tumour, while the patient is passing daily liquid stools.<sup>1</sup>

The most important of the tumours traceable into the pelvis remain for consideration, and we have now to determine whether the tumour which is present be due to

1. Enlargement of the uterus, including pregnancy, normal and abnormal tumours, etc., of the uterus;
2. Ovarian tumour; or
3. Distension of the bladder.

The tumours of the abdomen, respecting which a diagnosis is most frequently required, belong to this series, the cases not so included being, comparatively speaking, very few in number.

*Distension of the bladder.*—The tumour due to this cause is always (in uncomplicated cases) of recent formation, and it dates back but a short time. A very instructive case, and one illustrating well the nature of the difficulties liable to be met with in determining this point, came under my care some years since.

A woman, æt. 46, married, mother of one child, 17 years old, presented herself at the hospital with an enlargement of the abdomen of three weeks' duration, legs very œdematous, the abdominal wall externally presenting enlarged lymphatics with great puffiness of the skin covering the hypogastric and inguinal regions. There was a distinct well-defined tumour rising from the pelvis and reaching to three inches above the umbilicus, not tender, hard, firm, not fluctuating, giving the impression at first sight of being an ovarian cyst. Vaginal examination was difficult, owing to the extreme pain it occasioned; the vaginal walls were protruded in a swollen œdematous state, and in the form of tumours, through the vulvar aperture. The os uteri, however, was felt to be high up behind the pubes, and a round, firmer, hard tumour occupied the pelvis itself. There was, judging from the history of the case, no evidence of pregnancy. She stated that she passed water freely, and had done so for the last three weeks. The examination *per vaginam* was so difficult as to be unsatisfactory; the *primâ facie* view of the case was that it was an instance of rapidly growing ovarian cystic disease. A catheter was introduced into the bladder. The discovery was then made that the tumour was due to an enormously distended bladder, and nearly six pints of urine, slightly, but not greatly, offensive, were drawn off, the tumour above the pubes entirely subsiding. The further information was then obtained, by examination, that the uterus was enlarged, that a large fibrous growth occupied the posterior wall of this organ, that the whole organ was retroverted in the pelvis, and that this was the cause of the retention of urine. The fibrous growth was situated chiefly external to the uterine wall, and altogether the uterus was about the size of the gravid uterus of between three and four months. Further inquiry now elicited some interesting facts in the history of the case, but which had not been alluded to by the patient until they were specially asked for. It appeared that three days before the abdomen began to swell she had slipped downstairs over five or six steps, and strained herself in so doing, but she took no notice of this, as no immediate inconvenience resulted. There was a little difficulty in micturition, but nothing marked, and the retention had been disguised by the fact that there had been a more or less constant overflow. The involuntary mic-

<sup>1</sup> Walshe, *op. cit.* p. 315.



nutrition was naturally enough misinterpreted by the patient, and was not mentioned until specifically inquired after. The uterus had become retroverted, the tumour sinking down into the sacral concavity, and the pressure and dragging on the neck of the bladder occasioned the retention.

The particulars of this case sufficiently illustrate the nature of the inquiries, and the mode of examination necessary to be made. The case just described is somewhat analogous to others which have been recorded. It might be said perhaps that the duration of the tumour in the case above related (only three weeks) would at once have settled the question as against ovarian disease; but in some cases it has been found that ovarian disease progresses with extreme rapidity. Kiwisch says, 'We have seen a cyst, from the size of a fist to that of a child's head, appear in the course of fourteen to twenty-four days, accompanied by severe local and general symptoms.'<sup>1</sup> Further, in dealing with the statements of patients as to the duration of a particular condition we are always treading on uncertain ground. There was nothing, for instance, in the above case to prove that the duration of the hypogastric tumour dated back from only three weeks previous. It might well have existed, although much smaller, for some time antecedently.

*The diagnosis between ovarian and uterine tumours* will be considered at length in the chapters on 'Diseases of the Ovaries;' a few remarks only on the subject will now be made.

The diagnosis, as made out by an abdominal examination, should be corrected and checked, so to speak, by a vaginal one; a positive opinion should hardly ever be given as to the nature of any case, however clear it may appear to be, simply on the results obtained by the former method of investigation. Mistakes, ludicrous or serious, or both, have not by any means unfrequently followed neglect of this important rule.

#### ENLARGEMENT OF THE UTERUS. VARIOUS CAUSES, INCLUDING PREGNANCY

The causes of enlargement or tumour of the uterus are the following :—

Simple hypertrophy of the uterus.

Pregnancy, normal and abnormal.

Uterine polypus and fibroid tumour of the uterus.

Retention of the menstrual or other fluid in the uterine cavity (hæmato-metra and hydrometra).

Gaseous distension of uterus (physometra).

Abscess of the uterus.

Tubercle of the uterus.

Carcinoma of the fundus uteri.

Fibro-cystic tumour of uterus.

The least common of these pathological conditions are those which have been placed last on the list. The most common conditions met with, and giving rise to uterine tumour, are *pregnancy*, *fibrous tumour*, and *fibrous polypus of the uterus*. By far the majority of tumours in the abdomen, of any considerable size, and which are uterine in their nature, are found to be constituted by the presence of one of these three conditions mentioned; and

<sup>1</sup> Translation by Clay, p. 112.

in practice, therefore, the diagnosis of these, one from the other, is of the most importance. Here it may be mentioned that the diagnosis of these three conditions, one from the other, is far easier than the diagnosis of one or each of them from certain tumours of the ovaries, as will be presently shown.

#### DISTENSION OF THE UTERUS BY FLUID.

The cases coming under this head are some of the most important with which we have to deal, and their diagnosis possesses great interest. If the distension be at all considerable, the tumour produced by it is readily recognised above the pubes, and also from the vagina. Fluctuation is usually present when the tumour is large, but it is not a sign the presence of which can be greatly depended upon. One form of distension to which the uterus is liable is that produced by *retention of the menstrual fluid*, in young women who have never menstruated. In women who have menstruated also, menstrual retention may occur in consequence of the *os uteri or the vaginal canal becoming occluded*, as after parturition, or by the presence of tumours in the canal of the cervix uteri. (See 'Examination of Uterus from Vagina.') Then there are cases in which *purulent collections* from various causes take place in the uterus, or in which fluid of a more or less *serous* character is found distending the organ. Lastly, cases of *pregnancy*; for although, normally, the amount of fluid in the uterus under such circumstances does not entitle the 'enlargement of the uterus due to pregnancy' to be considered in this place, yet occasionally the quantity of fluid present in the uterus, together with the foetus, is very considerable indeed, and it has even been sufficient to obscure the diagnosis of pregnancy in some instances.

The diagnosis of these various forms of distension of the uterus is generally to be made out by a careful consideration of the attending circumstances and of the history of the case.

In cases where the woman is pregnant, but the *quantity of liquor amnii is very excessive*, it is just possible that on the first view of the case some difficulties might present themselves in the way of the diagnosis. A slight investigation of the history of the case, its progress and symptoms, would very shortly indicate the true explanation of the matter, and the signs of pregnancy revealed by a vaginal examination and otherwise would generally be conclusive as to the presence of that condition. Cases of this kind have been occasionally rendered additionally obscure by the presence of dropsical effusion into the cavity of the abdomen.

#### PREGNANCY.

*The feel of the tumour due to the gravid uterus.*—It is during and after the fourth month that we may be able to feel the gravid uterus above the pubes. Up to the fifth month the tumour so felt is tolerably firm, not sensitive, giving the impression of a rounded, smooth mass. After this period the tumour is usually felt to be softer, this being due to the presence of fluid within it, and the degree of softness will vary with the amount of the fluid. There is often an obscure fluctuation perceivable. Soon after the fifth

month harder masses or nodulations may be felt within the tumour, which gradually become more pronounced as it grows, these being the limbs or other parts of the body of the foetus which may come into contact with the uterine wall. If, as occasionally happens, the amount of liquor amnii is very small, the uterine tumour is felt to be everywhere hard and more resistant, but the elevations and depressions corresponding to the irregularities presented by the foetal surface are still to be detected. Usually it is necessary to press inwards with the point of the finger to detect the elevations in question, but now and then both the abdominal and the uterine walls are so lax that the members or other parts of the foetus are more easily felt on application of the hand.

In cases where the uterine tumour is not to be felt above the pubes, from presence of fat, from resistance, or other causes, there is a peculiar hardness and fulness of the region in question. The importance of engaging the patient in conversation while endeavouring to ascertain the physical characters of the tumour should be now kept in view. It will be found exceedingly useful also to make the patient inspire and expire very deeply several times in succession, while the hand rapidly follows the movement of the abdominal walls. Often, in this way, a tumour becomes recognisable, the existence of which would be otherwise problematical.

As regards the surface of the tumour due to the gravid uterus, it is usually perfectly smooth.

The discovery of the limbs or other parts of the foetus through the abdominal walls is not usually available as a diagnostic sign of pregnancy until a late period, when other equally significant data are also obtainable. But there are other signs of pregnancy obtainable at an early period, by simply feeling the tumour, which are of great importance—viz. the *feeling of the movements of the fetus within the uterus*. During the fifth month frequently, but after that time in the majority of cases, if the hand of the observer be laid smoothly over the abdomen and the suspected tumour, and gently pressed against it, a sharp, slight, but decisive tap is felt, due to the movement of the foetus within. This is felt with more or less ease in different cases. The woman may be undoubtedly pregnant, and with a live child, this sign being yet undiscoverable; but if a little patience be exercised, by manipulation and pressure the slight impulse will be perceived. It is often felt immediately on applying the hand, and is only felt again on removing and reapplying it. It is capable of being simulated by that sudden and spasmodic contraction of the recti muscles occasionally liable to be set up by the application of the hand in hysterical subjects; possibly also by the peristaltic movements of the intestines. The celebrated Joanna Southcott appears to have deceived her medical attendants by thus contracting the recti muscles. They believed that she really was pregnant. It has been recommended that the hand should be dipped in cold water in order more easily to excite foetal movements, but this is unnecessary, and the cold diminishes the acuteness of the sense of touch, while it is very likely to induce spasmodic contractions of the recti muscles, which are almost certain to be mistaken for foetal movements (Tanner).

There is still another sign of pregnancy derivable from palpation of the tumour through the abdominal walls, viz. hypogastric repereussion or ballotement. The patient is to be placed on the side, or, as Dr. Montgomery



recommends, on the knees, 'with the shoulders depressed, so that the foetus may be caused to gravitate towards the fundus uteri, which is also brought into more complete contact with the abdominal parietes.' The fingers are then to be pressed against the most dependent part of the tumour firmly but gently, and then very suddenly this pressure is to be withdrawn. In the act of withdrawing the pressure the foetus is felt to fall against the retiring finger, and this constitutes the sign in question. It is identical with the internal ballottement previously described (see p. 842). Without placing the patient in this position, this external ballottement is often practicable when the pregnancy is far advanced; that is to say, the patient lying on the back, pressure is steadily made by one hand on one side of the uterus, and manipulation by the other hand is performed on the opposite side of the uterus, as above directed.

The value of this ballottement as a sign of pregnancy is great, but if the abdomen contained a solid pedunculated movable tumour, together with ascitic effusion, the sensation described above might be communicated. The internal ballottement from the vagina is not so liable to be simulated.

*The size and position of the tumour constituted by the gravid uterus.*—Under ordinary circumstances the gravid uterus is, at the end of the third or beginning of the fourth month so large that the fundus of the uterus can be perceived above the brim of the pelvis, and during the succeeding months, unless interfered with by some abnormal occurrence, the uterus rises progressively higher and higher. In the sixth month the upper border of the uterine tumour is as high as the umbilicus. In the seventh month it reaches two inches or more above this point, and at the end of the eighth month it reaches the ensiform cartilage. After this time—that is to say, during the ninth month—although the uterine tumour increases in size, this increase does not show itself so much in the upward direction as laterally and anteriorly; and during the last week or two there is, often more than not, an actual sinking of the tumour to a slight extent. [Fig. 208 shows a not uncommon position of the gravid uterus at the sixth month.]

As regards the *position* of the tumour, the uterus at first, and during the first two or three months, occupies a median position—until it becomes bulky and rises into the abdomen. But once in the abdomen, it generally occupies for the next two months—that is to say, speaking broadly, during the fifth, sixth, and part of the seventh months—a lateral position, being most frequently found on the right side of the abdomen. The degree of the lateral displacement varies in different cases; the tumour may be, and has been, overlooked, owing to the observer not being aware of this normal lateral deviation (see fig. 208).

The most important circumstance to bear in mind in deciding for or against pregnancy—size and position of the tumour alone considered—is the *relation which we find to subsist between the size and the duration of the tumour*. In pregnancy there is a progressive increase in the size of the tumour.

Further, we can frequently pronounce very positively, from the result of our examination, that there is no pregnancy. And the larger number of cases that come before us are cases in which the determination of this single point is quite sufficient. Thus, a woman is suspected to be pregnant, and it is known that if she be pregnant the pregnancy must have advanced, say six

months. We examine and find absolutely no tumour in the abdomen, which is possibly fat and tympanitic. We can say, with this fact before us, that pregnancy is impossible—pregnancy of the duration supposed, at all events.

In many cases practitioners—some of them men of high standing and reputation—have been led to form erroneous conclusions respecting the existence of pregnancy. Often the mistake has been committed owing to the patient's statements having been attended to, and either no examination, or a very superficial one, instituted. The account given by the patient and the symptoms observed not unfrequently very closely resemble those present in pregnancy; so much so, indeed, that by many writers the condition has received a special name, 'spurious pregnancy,' 'pseudocyesis' (Good); and the symptoms present under these circumstances may be such that they deceive even patients who have had considerable experience in child-bearing. Accounts of such cases will be found in most modern text-books—Mont-

FIG. 208.



gomery, Tanner, etc. The only safe rule to be followed is never to consider the diagnosis as actually established, unless some physical sign on which we can place reliance as a sign of pregnancy be detected. What these reliable signs are will be pointed out in their due order. The foregoing observations apply to ordinary cases. Here, however, must be mentioned a few of the more important exceptional cases, in which deductions, drawn as directed, might prove fallacious.

Thus, a woman ceases to menstruate; there is no menstruation for a period of three months; at the end of the three months she becomes pregnant, and three months later she informs her medical attendant that she is certainly six months pregnant. An examination is made, but no tumour is detected above the pubes, and the erroneous opinion is given that the patient is deceived, and that she cannot be pregnant. Cases of this kind are not very uncommon. Another instance is that in which a woman becomes pregnant, the foetus dies (at the age, for instance, of three months), but is not expelled. The woman does not increase in size, and for this reason the case may be supposed not to have been a case of pregnancy at all. This case is not a common one, however. Another is that in which the uterus having

become impregnated grows with inordinate rapidity, and we find the uterine tumour very much larger than can be accounted for on the patient's statement of the history of her case. Such is sometimes the case in *hydatidiform* pregnancy, of which the following is an instructive instance :—

The patient, aged 28, had been married three months, was last unwell the week previous to her marriage. Three weeks before I saw her, she experienced a slight strain in getting over a stile, and dating from that period there had been a slight 'show.' For a fortnight she had been treated as for an impending miscarriage. The day before I saw her, a severe flooding occurred, soon after which I was requested to visit her. On seeing the patient, I was struck with the great size of the abdomen; a tumour, evidently the uterus, extended to two inches above the umbilicus. The first impression produced on my mind was that the pregnancy must have advanced farther than the time stated—three months. On passing the finger, and subsequently the hand, into the os uteri, the organ was found distended with a mass sufficient to half fill a wash-hand basin, and composed of an ovum which had undergone the hydatidiform degeneration.<sup>1</sup>

The facts of this case bear out the observations of Montgomery and other writers, that in this peculiar affection, an unusually rapid increase in the size of the uterus may be observed, a rate of increase not observed in normal pregnancy. Dr. Moorhead has recorded a case in many respects resembling the above.<sup>2</sup>

In cases of *retroversion of the gravid uterus* (see fig. 209) there is a fallacy liable to rise in reference to the diagnosis, although other circumstances usually lead to the detection of the real nature of the case. The tumour which should be present above the pubes is then absent, but it is usually replaced by another—the distended bladder. And it is just possible that the observer, finding a tumour above the pubes answering in position, in size, and in shape, to the tumour expected to be found there, might make an important error in diagnosis. The urinary difficulties, the extreme pain and tension in the pelvis, and the other symptoms usually present, generally, however, attract attention, and point out that there is something about the case very unusual at all events. A vaginal examination would at once enable us to explain the nature of the condition present.

Lastly must be considered those cases in which *extra-uterine pregnancy* is present. These cases are not very common, but the symptoms observed under such circumstances are generally such as to occasion more or less obscurity in the diagnosis. The more common case is that commonly known as Fallopian pregnancy, the foetus being enclosed in one of the Fallopian tubes. The less common case is that in which the foetus is developed in the abdominal cavity. The tumour presented to the touch in such cases may be situated in the middle line, but more usually it is to one side. Speaking generally, there is little in the tumour itself which is characteristic or which would enable us to distinguish between these cases and cases of normal pregnancy, unless the nature of the case were suspected, and special care taken. The accompanying symptoms are, however, usually peculiar, and to these we must look for aid in the diagnosis. It more frequently happens

<sup>1</sup> The case is more fully reported in the *Lancet*, vol. ii. p. 369, 1862.

<sup>2</sup> *Lancet*, vol. i. Feb. 21, 1863.



that one of the terminations of this abnormal pregnancy has arrived before the diagnosis has been made out. The terminations are various. Thus the foetus may grow to its full development, then die and remain in the abdomen, or it may burst from the cavity in which it is enclosed (whether the Fallopian tube or a cyst) into the abdomen, before arriving at full development, occasioning in the latter case often frightful hæmorrhage into the abdomen and sudden death to the mother. Or the death of the mother not ensuing, the foetus becomes encysted and remains enclosed in the abdominal cavity. When the foetus is in the abdominal cavity, this being its primary or its secondary location, it may there remain for many years, giving rise to no particular inconvenience ; or, after a variable time, a process of suppuration may be set up, in the course of which the remains of the foetus are

FIG. 209.



expelled, through a fistulous opening in the abdominal walls, into the intestinal canal, or into the bladder.

A woman, the subject of extra-uterine pregnancy, may present no symptoms of an unusual character up to a considerably advanced period of gestation. Such may, however, set in at a much earlier period, and this depends, partly at all events, on the location of the foetus. The symptom which in some cases first attracts attention is the fact that the patient, though supposed to be pregnant, has what she considers to be a catamenial discharge. Discharges occurring in a pregnant woman should lead us to investigate the case more particularly. One of the most frequently observed symptoms in extra-uterine pregnancy is presence of pains of a dragging, sharp character in the pelvic region, the abdomen being often also tender to the touch. Yet there is nothing very significant in such symptoms, for patients

who are the subjects of normal pregnancy not uncommonly present symptoms such as those which have been described. And if the patient be examined *per vaginam*, we usually find the os uteri presenting characters such as are present in normal pregnancy. The use of the sound would of course inform us whether the uterine cavity were empty or not ; but there is this difficulty in the use of the sound in the diagnosis, that it is only safe to use it when we are absolutely sure that the uterus does not contain an ovum. Practically, the sound is of little service in the diagnosis.

*State of the skin covering the abdomen, and condition of the umbilicus.*—Various peculiarities in the condition of the skin covering the abdomen, and of the umbilicus, have diagnostic significance and value.

The most important peculiarity in question is a change observed in the greater number of cases of pregnancy. There is found 'a coloured line of about a quarter of an inch in breadth, extending generally from the pubes to the umbilicus, but not unfrequently thence to the ensiform cartilage ; its hue is some shade of brown, but sometimes partaking of the yellowish tint of ochre, and sometimes amounting to a full-bodied dark amber' (Montgomery). Around the umbilicus, too, a dark-coloured disk is often found, which Dr. Montgomery terms the 'umbilical areola.' The two may, and often do, exist together, but the umbilical areola is considered by Dr. Montgomery as of higher value as a positive indication of pregnancy than the dark abdominal line. These changes in the skin above and round the umbilicus are not found in all cases of pregnancy ; they are not found equally developed in different individuals at the same period of pregnancy ; they are most marked in dark women ; they are less to be depended upon as diagnostic of a second than of a first pregnancy. The observer must be cautioned, however, that until he has actually acquainted himself with the nature of the discolouration due to pregnancy, by inspection of some few undoubted cases, he will not be in a position to make use of this means of diagnosis.

*Auscultation of the abdomen.*—In the employment of auscultation we have a means of diagnosis, in cases of suspected pregnancy, of the greatest possible value and importance. Every student of medicine should diligently prepare himself for making use of this means of diagnosis by practising it on all occasions.

It is now necessary to give an account of the sounds heard on auscultation of the abdomen—(1) under ordinary circumstances ; (2) when pregnancy is present ; to indicate the value of the latter as diagnostic of pregnancy ; and to point out how, and what, fallacies are likely to be encountered.

The stethoscope should be preferred to the application of the ear directly to the abdominal parietes. The abdomen must be quite uncovered, though a practised observer may allow a very thin handkerchief to be interposed, if it appear advisable. The patient must be lying down, and the abdominal walls relaxed by instructing her to draw up the knees. The observer, standing on the patient's right side, holds the stethoscope with the left hand, grasping it firmly close to the end which is to be applied to the abdomen. The stethoscope is then firmly, gently, but steadily pressed inwards over the spot to be examined, and there maintained while the ear is applied. When the abdomen is tight, it will often be impossible to hear the foetal heart unless these precautions are attended to ; and, indeed, it is sometimes necessary to press the end of the stethoscope inwards a considerable distance, to

obtain the desired result. This is particularly the case when there is a tolerable quantity of liquor amnii in the uterus, when there is any fluid in the abdomen covering the tumour to be explored, when intestines are interposed, or when the walls of the abdomen are unduly loaded with fat. Unless the stethoscope be held as directed, it is apt to roll about over the surface of the uterine tumour. The employment of sudden force is very objectionable: the pressure of the stethoscope inwards, when necessary, should be slow and gradual. The examination must be conducted in a quiet room.

The sounds which may be heard on applying the stethoscope to the abdomen of a woman who is not pregnant, may be confounded with those due specially to pregnancy, and *vice versâ*. The sounds coming under the first head are—(a) Sounds produced by passage of flatus from one part of the intestines to another; (b) sounds due to pulsation of the heart; (c) sounds due to pulsation of great vessels in abdomen, in aneurisms of the abdomen, etc.; (d) sounds due to respiration. Now, respecting the sounds due to motion of flatus, etc., within the intestines, a very little practice will prepare the observer to at once recognise them. Respecting the sounds due to pulsation of the heart, some important facts are to be remembered. It has been occasionally found that the beats of the mother's heart were quite audible very low down in the abdomen, and there are cases on record in which, the heart beating with unusual rapidity—*e.g.* 120–130—and heard about the neighbourhood of the umbilicus, these pulsations have been mistaken for those of the foetal heart. This shows the necessity for counting the pulse of the patient before employing auscultation. The sounds proceeding from the great vessels, etc., of the abdomen, will not be described just now, as they will be more fully considered presently. Lastly, the sounds produced by the respiration of the patient are in rare instances transmitted to that part of the abdomen likely to be examined in cases of suspected pregnancy.

Next, as to the sounds heard in cases of pregnancy. These are—(a) Sounds produced by pulsation of the foetal heart; (b) the placental or uterine souffle; (c) sounds due to pulsation in the funis accidentally pressed upon—*funic souffle*; (d) sounds due to the movements of the foetus. Each of these requires a separate description.

(a) *Sounds of foetal heart*.—If the patient be advanced in pregnancy, to the seventh or eighth month, and the circumstances of the case are ordinary ones, the foetal heart is usually heard to beat over a space comprising three or four square inches of the abdominal surface, this spot being situated to the left of the umbilicus and a little below this point. If heard at the very earliest moment at which it is audible, the stethoscope would be applied in the middle line just above the os pubis; as pregnancy advances, the point of maximum intensity of heart's beat would travel upwards, and to the left. Generally speaking, when pregnancy is far advanced, the foetus lies with its head downwards, its back to the left side, and it is through the back of the foetus, which is made by pressure of the stethoscope to come into contact with the uterine wall, and the latter with the abdominal wall, that the foetal heart-beat has to be conducted, in order to reach the ear of the observer. If the foetus be differently placed in the uterus, if the back be turned to the right side—the next most common circumstance—then the heart-beat is heard below and to the right of the umbilicus. And if the foetus be so



placed that the breech is lowest in the pelvis, the heart-beat is heard to the right or left of the umbilicus, according to circumstances, but *above* it—that is to say, supposing the pregnancy to be pretty far advanced. At the period when the uterus lies to one side of the abdomen, the situation at which the foetal heart is heard will be correspondingly modified.

The sound heard by means of the stethoscope is like that of the heart of a child in miniature—it is a double sound, or rather a succession of a pair of sounds, the one rapidly following the other. They have ‘generally received the familiar name of tic-tacs, from their resemblance to the sounds of a watch’ (Montgomery). It is scarcely possible to mistake this peculiar sound for anything else, and *vice versâ* : the sound is one *per se*. Its force and intensity are liable to variation ; thus, it is very weak and feeble when first heard, and acquires strength as pregnancy advances. But the *rapidity* of the foetal heart-beat, the foetus being healthy, remains almost constantly the same up to the time when labour has fully set in ; and this fact has been established by the observations of several eminent obstetric auscultators. The average rate of the foetal pulsation, according to Hüter,<sup>1</sup> who has made 1,195 observations on the subject, is 132. In 10 per cent. of his cases it amounted to 144, in 83 per cent. to 132, in 7 per cent. to 120, and the higher figure was due to the presence of a disturbing element—movements of the foetus—in most of the cases. It may here be mentioned that in practice it is found very convenient to follow the method of Schwartz in counting the foetal pulse—that is to say, to reckon the number of beats in *five* successive seconds, instead of the ordinary method of counting the number of beats in fifteen seconds. Thus, the ordinary foetal heart-beat is 11 for five seconds, mounting to 12 and descending to 10 in exceptional cases. The statement of Montgomery is, that the pulsations ‘vary in number from 120 to 160 ; but the limits are in general between 130 and 150.’ This does not really differ from the figures given more recently by Hüter. The rate of frequency is affected by certain circumstances, as previous observers had noticed ; but Hüter gives more precise indications on this point. His general results are, that, ordinarily fluctuations in the maternal have no effect on the foetal pulse ; that when the mother is the subject of severe inflammatory disease, the foetal pulse may be permanently increased in frequency ; that movements of the foetus always accelerate the foetal pulse, this elevation being transitory. Frankenhäuser broached the theory, that the frequency varies according to the sex of the foetus—that the foetal pulse has a low average when the foetus is of the male sex, and a high average when of the female sex ; the average number for males being 124, the average for females 144. The truth of these conclusions has been tested separately and independently by Breslau, Hennig, Haake, and Steinbach, whose observations, made on an extensive scale, do not confirm the theory in question. Many circumstances are capable of modifying the frequency of the foetal heart-beat ; and even if Frankenhäuser’s theory should prove on the whole to be correct, this would vitiate the results obtainable in particular cases.<sup>2</sup>

Next, as regards the period of pregnancy at which the foetal heart may be

<sup>1</sup> *Monatsschrift für Geburtsh.* Sup. vol. for 1861.

<sup>2</sup> The observations on this interesting subject, and above referred to, will be found in the volumes of the *Monatsschr. für Geburtsh.* for the years 1859, 1860, 1861.

heard. Practically, it is a sign of pregnancy which may be ordinarily detected in the *fifth month*. If the observer be experienced, and if circumstances be favourable, it may be heard earlier than this. Depaul heard it as early as eleven weeks and four days after conception—that is, near the end of the fourth month. After it has been once heard in a particular case, it should be possible to hear it up to the end of pregnancy. Hüter states that he has never failed to hear the foetal heart in the sixth month, unless in cases when the foetus has proved to be dead. Depaul and Jacquemier failed to hear the foetal heart in only eight cases out of 906, and in six of these the foetus proved to be dead.

With respect to the value of the sound of the foetal heart as a sign of pregnancy, it is at once the surest and the best sign available; and to an observer experienced in obstetric auscultation, and knowing the fallacies to be avoided, it is an absolutely sure sign of pregnancy. But the absence of the sound, or the inability of the observer to hear the sound, is not always a proof that the woman is not pregnant. The foetus may be dead. The value of the observation in this particular will entirely depend on the skill of the observer. In a case where a difficulty is found in hearing the sound, it is well to seek for a hard part of the tumour, and to apply the stethoscope over that point; and, again let it be stated, practice will do much to remove difficulty of this kind. If the abdomen evidently contain fluid in addition to the tumour we suspect to be the pregnant uterus, care must be taken to apply the stethoscope on the tumour. If the quantity of liquor amnii be much larger than usual, we may be able to hear the foetal heart only after careful and prolonged search, and then very faintly. The foetal heart-beat, when heard, is a positive sign of pregnancy; when it is not heard, we have to make our diagnosis of pregnancy on other grounds.

(b) *The uterine souffle*.—This is a sound synchronous with the mother's pulse, and varying, as the mother's pulse, in frequency. It is ordinarily, and very accurately, compared to the sound produced by blowing gently over the mouth of a wide-mouthed bottle; still more closely it resembles the sound heard in the large arteries of the body, when these are at all subject to pressure. The uterine souffle is heard more generally in one or other of the inguinal regions, at an advanced stage of pregnancy—most commonly, according to Montgomery, at the situation of the right Fallopian tube. It is, however, variable in position, and may be heard in rare cases as high as the fundus of the uterus. Generally, the surface over which it can be heard is limited to a space a few inches in diameter, or less. It is not always to be heard; thus, Naegele found it absent in 20 out of 600 cases. Whether produced in, or by means of, the uterus in a gravid state, it is capable of being closely simulated under conditions altogether different. It may be detected at a somewhat earlier period of pregnancy than the sound of the foetal heart. As regards the value of the uterine souffle as a positive sign of pregnancy dependence can only be placed upon it when the observer is well-skilled.

(c) *The funic souffle*.—In rare cases, the funis lying over a solid part of the foetus, and being interposed between it and the stethoscope, a souffle is heard, *double*, and having the frequency of the foetal heart-beat. This, which is Kennedy's explanation of the matter, is the one more generally

received. The sign has little practical value, as it is so rarely and so accidentally heard.

(d) *Sound produced by foetal movements.*—This sound, as a sign of pregnancy, has received some attention from the fact that Naegele, its discoverer, ascertained that it could be heard first at a very early period of pregnancy—in the third month—before other auscultatory signs are available, and indeed before other signs, some more, some less important, are discoverable. Depaul, who has written an almost exhaustive work on foetal auscultation, confirms Naegele's views. The sound in question is a slight dull sound, accompanied by a slight or sudden impulse or jerk, and it is the sound of the movement which can be felt by the fingers, as before described (see p. 871). Depaul heard the sound in question in nine out of twelve women who had not passed the twelfth week of gestation.

The value of the sign may be gathered from what has been stated. An experienced observer might thus obtain very early evidence of the presence of pregnancy. One not very well experienced in obstetric auscultation would pause and wait until more positive and reliable information could be procured before pronouncing a decided opinion.

Lastly, in respect to all the signs derivable from auscultation, it will have been gathered from what has been said that it is the foetal heart-sound, and that alone, in which any confidence can be placed in the diagnosis of ordinary cases. Unless the observer be very acute, auscultation is of no service when the woman has not passed the thirteenth or fourteenth week. Four months passed, auscultation becomes of the highest practical value.

#### OTHER CONFIRMATORY SIGNS OF PRESENCE OF PREGNANCY.

**ALTERATIONS IN THE COLOUR OF THE VAGINA.**—A very remarkable alteration in the colour of the lining membrane of the vagina is usually observed in *women who are pregnant*; and the presence of the alteration in question is a valuable sign of gravidity.

For a knowledge of this sign of pregnancy we are indebted to Kluge and Jaequemier. The statements of these observers have received confirmation from extended observations on the subject made by Montgomery.<sup>1</sup> The shade of colour presented by the vaginal mucous membrane is a *livid, dusky hue*, 'altogether different from the shade of colour seen in ordinary vascular congestion, even when intense, or in cases where there are varicose veins,' and it is not capable of being simulated by any other congestion. The alteration in colour affects the mucous membrane at the inside of the nymphæ near the orifice of the urethra and the clitoris, and becomes more marked as we ascend towards the upper end of the vagina and os uteri. The alteration is thus most evident in the latter situations. It is seen in patches, not being uniformly diffused. Hæmorrhoids will not produce this colour of the vagina. Dr. Montgomery had not seen an instance in which it was clearly visible within the first two months; it was frequently not developed until the fourth or fifth, and was sometimes hardly perceptible at all; but he had not seen a single instance in which its perfect condition, as observed in healthy pregnancy, was simulated in any other state of the system.<sup>2</sup>

<sup>1</sup> *Signs and Symptoms of Pregnancy*. 2nd ed. p. 239.

<sup>2</sup> *Loc. cit.* p. 244.



The absence of the dusky, livid hue in question is thus not indicative absolutely of absence of pregnancy, but its presence, when well marked, appears to be a sure sign of pregnancy ; and one, moreover, which may be available at a very early period of gestation.

**CONDITION OF THE BREASTS.**—The examination of the breasts furnishes us with very important data for the diagnosis of certain conditions or diseases. In cases of suspected pregnancy, the appearances presented by these organs offer not rarely decisive evidence for or against the supposition, as the case may be ; provided always that the observer be experienced in the matter, and has so familiarised himself with the usual appearances and changes in these organs produced by pregnancy, as to be able to distinguish them, and to assign a due value to the particular changes noticeable in the case under examination. Such familiarity can only be acquired by practice and careful observation.

The changes observable in the breasts may be considered under the following heads : Alterations in the size and texture of the breasts, and alterations visible to the eye only.

1. *Alterations in size and texture.*—A simple swelling of the breasts is not in any way to be depended upon as a sign of pregnancy. As a rule, the breasts increase in size during pregnancy, and they begin to increase in size usually at a very early period ; but many other causes may produce a like increase in the size of the glands. The increase in size may be due simply to *fat*. The breasts when thus increased in size are more pendulous in appearance, and, what is more important, are much softer to the feel than in cases of pregnancy. The increase in size is evidently due to deposit of a soft, cushiony, elastic material (fat) in and around the glands, and beneath the skin covering them. Enlargement of the breasts due to pregnancy conveys to the touch a sensation of hard, knotty, tolerably well-defined masses (the lobules of the glands) felt beneath the skin, these being arranged symmetrically around the common centre. The normal anatomy of the mammary gland must be known, or the observer will fail to appreciate to the full the characters now alluded to. In the simply fatty breast the enlargement present is chiefly constituted by a soft, uniform structure ; the lobules of the gland may still be recognisable to the touch, but they are small in proportion to what is observed under other circumstances. An increase in the size of the breasts due to fat is likely to be observed in women at the climacteric period ; and the fact that the menses are irregular or absent, that the breasts are painful, while at the same time the abdomen is noticed to be larger, often induce women at this age to believe themselves pregnant.

Enlargement of the breasts is sometimes a consequence simply of marriage ; the glands become tumefied, painful, and more knotty, than usual, and, in point of fact, the changes observed somewhat resemble those present in cases of pregnancy. The swelling is, however, temporary ; after a few days it subsides, or, if it continue, no further changes are observed in the skin around the nipples, such as will be presently described as associated with pregnancy. A slight enlargement of the breasts is frequently present at the catamenial periods under ordinary circumstances ; here the breasts return to their normal state during the catamenial interval. Temporary suppression of the menses is very generally associated with mammary enlargement.

Any condition resulting in distension of the uterus may occasion swelling of the breasts. The presence of ovarian tumours is frequently associated with enlargement of the breasts.

It does not always happen that when the patient is pregnant the breasts become enlarged. Thus, neither positively nor negatively does the sign in question give reliable information.

2. *Changes in the nipple.*—One principal alteration in the nipple visible to the eye, and consequent on pregnancy, is a slight increase in its size. It is more tinged and vascular, it is rather darker than previously,<sup>1</sup> and towards the end of pregnancy the colour may become very dark, approximating to that of the skin around, presently to be alluded to. The apex of the nipple during the latter half of pregnancy is usually more or less scaly in appearance, due to the fact that a slight exudation has been going on, on the drying up of which little scales are left behind. The most important diagnostic fact connected with the nipple is the possibility or not of squeezing from it a secretion. The precise value of this latter sign must now be particularly examined.

In order to ascertain in a given case whether a secretion be actually present or not, it is necessary to manipulate in a peculiar manner, too familiar to need description. The secretion is thus pressed outwards from the recesses of the gland, and exudes at the orifices of the ducts on the nipple. The human milk is a serous-looking fluid, almost transparent, and unlike the milk of cows. The presence of a secretion of milk in the breasts is a valuable sign, but by no means a certain sign, of pregnancy. Cases are on record in which girls have had such a secretion quite unconnected with pregnancy. Montgomery refers to three very well-marked cases of this kind: in one case, that of Baudelocque's, it was observed in a little girl aged eight years only. Again, women advanced in life sometimes exhibit this secreting power in the breasts; and this is not astonishing, when we find it indisputably proved that, under certain circumstances, the breasts of individuals of the male sex have been known to secrete a fluid to all intents and purposes identical with milk. Next, it is to be observed that women who have once borne one or more children not unfrequently continue to secrete milk for a very considerable time—for many years in some instances; and hence, if a woman has had children, presence of milk in the breasts has very little value as a sign of pregnancy. Dr. Tanner found the presence of milk indicative of pregnancy as early as the ninth or tenth week, and he considers the presence of a secretion containing, on microscopic examination, the characteristic milk globules, with large oil particles and colostrum granules, as an early and reliable sign of pregnancy in a woman who has never given birth to a child.<sup>2</sup>

3. *Changes in the areola.*—The changes observable in the areola are of very great importance. William Hunter, and more recently Montgomery and Earle, have attached a great degree of value to these changes as a sign of pregnancy. Around the nipple there is a narrow band of integument of a delicate texture, resembling pretty nearly the surface of the nipple itself. This circular band is of variable width in different cases; it is the areola.

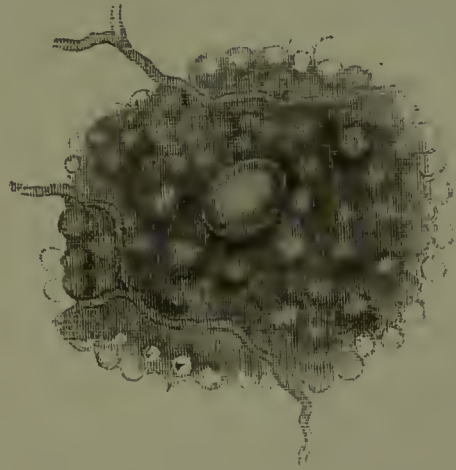
<sup>1</sup> ' . . . crassescit papilla, inflata videtur, color ejusdem fit obscurior, simili colore distinguitur discus ambiens.' Rœderer, *Elem. Art. Obst.*

<sup>2</sup> *Op. cit.* p. 63.

When pregnancy occurs, the areola becomes larger, altered in colour, presents on its surface certain eminences not before observable—not observable to such a degree at all events—and it becomes altered in some other particulars. The value of these areolar changes is unquestionable, but it appears from observations and from facts which have come under my notice that the areola may, apart from the existence of pregnancy, undergo, in women indulging in sexual intercourse, changes which resemble very closely those due to pregnancy.

One change observed, and to which Montgomery has specially directed attention, 'is a soft moist state of the integument, which appears a little raised above the surrounding skin, and in a state of turgescence.'<sup>1</sup> This change is observable as early as the end of the second month. It is of more diagnostic value in the case of primiparæ.

The deepening of the *colour* of the areola is the one which has been the best known. The degree of the change in the colour varies in different subjects. In light-haired women it may be slight, but in dark-haired women

FIG. 210.<sup>2</sup>FIG. 211.<sup>3</sup>

it is often very striking and intense, the areola in such cases presenting an almost complete blackness at the end of pregnancy. During the first two months little alteration of colour is evident, but in the third month the tint becomes perceptibly darker in most cases. In the fifth month it is ordinarily decided, and from this time to the end of pregnancy the tint deepens. In Montgomery's work will be found some beautiful and accurate pictorial representations of the areola at the third, fifth, seventh, and ninth months respectively; the areola of an albino is also depicted. A dark-coloured areola is by itself, and in a woman who has had children, more especially if she be of dark complexion, not of great value as diagnostic of pregnancy. In conjunction with other changes it has great value.

The *size* of the areola varies in different persons. The areola may be only a quarter of an inch broad, or it may have a diameter of as much as three inches. When it is very dark it is usually very large also. The point to be observed is *increase* in the width of the areola; '. . . discus ambiens,

<sup>1</sup> *Op. cit.* p. 105.

<sup>2</sup> Fig. 210, after Montgomery, shows areola at third month.

<sup>3</sup> Fig. 211, from Montgomery, shows areola at seven months.



qui in latitudinem majorem expanditur' (Rœderer); and this is, other signs agreeing therewith, indicative of pregnancy. As the pregnancy advances the width of the areola increases. The areola may in rare cases be found at the end of pregnancy not more than a quarter of an inch broad; absence of a wide areola is therefore not a positive sign that pregnancy is absent.

*The areolar glands or follicles.*—The most important, the most characteristic, and the most universal of the changes observable in the areola, and due to pregnancy, consists in the formation of little glandular eminences projecting from the surface of the integument covering the areola, not unlike the head of a pin in size and shape, well described by Rœderer in his celebrated work in the following terms: 'Discus ambiens . . . parvisque eminentiis, quasi totidem papillulis, tegitur.' These little eminences have been termed miniature nipples; Morgagni detected lactiferous tubes going to each of the little tubercles in question, and the milky fluid, it has been stated, has been observed to issue from them under favourable circumstances. The little eminences now under consideration begin to show themselves as early as the end of the second month of pregnancy; they subsequently increase in number, and also in size. They are more thickly placed close to the nipple; are usually from twelve to twenty in number; the elevations to which they give rise are perceptible to the eye and to the touch.

There is another point of some importance. The little eminences due to presence of areolar glands often persist and do not disappear after pregnancy and suckling have come to an end. In one case I distinctly noticed areolar glands well marked, when the lady had not had a child or given suck for five years. The mere presence of these areolar glands cannot therefore, I believe, be relied on as a sign of pregnancy in a woman who has had children. As a sign recognisable at a very early period, as a sign which we find most constantly of all present, the presence and *growth under observation* of the areolar glands or follicles is, however, of the greatest practical assistance in the diagnosis of pregnancy.

*Secondary areola.*—This term is applied to a change in the areola of a peculiar character. At the fifth month, not earlier, according to Montgomery's experience, are observed 'numerous round spots or small mottled patches of a whitish colour scattered over the outer part of the areola, and for about an inch or more all round presenting an appearance as if the colour had been discharged by a shower of drops falling on the part.'<sup>1</sup> As pregnancy advances, these appearances are intensified. Montgomery's opinion was that these appearances are quite distinctive, 'exclusively resulting from pregnancy.'

To sum up these remarks on the characteristic changes in the areola—we have increase in size, change of colour, development of areolar glands, presence of secondary areola, moist puffy state of the integument. If the case before us be one of pregnancy, we shall find these changes present in association with each other; some will be found more marked than others in different cases.

*Other changes in the breasts visible to the eye.*—In cases of pregnancy the veins running beneath the skin become more visible than usual. Another change to which reference must be made is presence of little cracks in the integument, giving rise to formation of narrow sinuous white lines radiating

<sup>1</sup> *Op. cit.* p. 108.

irregularly from the centre of the breasts, and produced by the tension and stretching of the skin. The presence of these lines is a sign of pregnancy, if the patient have never conceived or given suck, and if the enlargement of the breasts before us is evidently not due to fat; but under other circumstances it is valueless, and may mislead.

*General value of changes in the breast as diagnostic of pregnancy.*—These signs, taken as a whole, should, in reference to the diagnosis of the case before us, be considered side by side with other signs of pregnancy before we proceed to pronounce a positive opinion. In cases of pregnancy the symptoms march onwards with a certain amount of regularity, and if one sign be present another should be present also. Thus, if in the case before us we find what we consider to be a perfect instance of the pregnancy areola of about the fifth month of gestation, there should be at this time a tumour discoverable in the abdomen; failing to find a tumour, we should at once conclude further investigation of the case to be necessary. The mistakes which have been committed in the diagnosis of pregnancy will on inquiry be generally found to have resulted from the observer attaching an undue importance to some one sign on which he has been accustomed to rely, and from his having omitted to ascertain the presence or absence of other, perhaps more important, signs of pregnancy.

*Absence of menstruation.*—This, though a most important sign of pregnancy, is far from being a positive one. (See chapter on ‘Amenorrhœa.’)

*Quickening.*—It is well known that, at a certain period of pregnancy, the patient usually experiences a peculiar sensation in the abdomen in the region of the uterus, due, as is almost generally admitted, to the actual movements of the foetus within the uterus, and that the sensation in question usually continues to be felt by the patient until delivery has taken place. Popularly, the time at which the sensation in question is first perceived is termed the period of *quickening*, it being believed, although this belief is of course unfounded, that the foetus only then begins to have a separate and distinct life of its own. The presence or absence of quickening—that is to say, of the sensations supposed to be due to motions of the child—is considered by women in general as complete proof of the presence or absence of pregnancy; and cases are not at all uncommon in which, in the face of facts demonstrative of the impossibility of pregnancy being present, women continue to imagine that they are with child, led away by their reliance on this supposed infallible sign of pregnancy.

It will be well to consider, in the first place, the nature and character of the sensations conveyed to the mother, and produced by the pregnant condition of the uterus, and, in the next place, other conditions which may give rise to sensations capable of simulating these.

The sensation termed ‘quickening’ is experienced by a pregnant woman usually at the end of four calendar months from the date of conception (Hamilton); or ‘between the end of the twelfth and sixteenth weeks after conception, or, adopting another mode of calculation, between the fourteenth and eighteenth weeks after the last menstruation’ (Montgomery). It is sometimes felt at an earlier period than this, in very rare cases in the tenth week from conception; and in some cases it is not perceived until a considerably later period. So far respecting the time at which it occurs. The phenomena of quickening are described by Dr. Montgomery as follows:

‘ Under ordinary circumstances, when quickening does occur, but especially if it happens in conjunction with the sudden ascent of the uterus out of the pelvis, the woman is apt to feel an unusual degree of nervous agitation, which not unfrequently ends in faintness, or even complete syncope, after which she is sensible of a slight fluttering sensation, which from day to day becomes more distinct, until she fully recognises the motions of the child.’<sup>1</sup>

There has always been some difference of opinion as to the cause of the sensation termed quickening. Thus it has been considered by some to be due to the ascent of the womb into the abdomen, by others to the first peristaltic contractions of the newly organised uterine muscular fibres (Dr. Tyler Smith); and the seat of the sensation has even been held to be in the abdominal parietes. The more general idea is that the sensation is due to the actual motions of the child.

This difference of opinion as to the cause and nature of quickening appears to depend on the fact that the phenomena witnessed in different cases, and termed ‘quickening,’ are in reality not always identical; and the term must be considered a composite one, meaning, in one case, the alteration in position of the uterus due to its increasing size; in another, the actual sensation of the child’s movements; in a third, possible contraction of the uterine muscular fibres alone. This distinction has not been sufficiently insisted upon. It is very certain that by women in general the term quickening is not held to mean exclusively and always the sensation of the motion of the child: they often mean by the expression a particular attack of faintness, which may not be followed by the experiencing of actual sensation of motion of the child for some very considerable time afterwards.

After the period at which quickening is usually observed has passed by, the patient being pregnant, the motions of the child become more and more evident, and the sensations described by the mother are plainly and unmistakably due to the active motions of the foetus *in utero*. Whatever doubts may exist as to the actual nature and seat of the first sensations experienced, there can be none as to their cause at a later period. The sensations attributable to the motion of the foetus are now peculiar in regard to their suddenness, abruptness, and distinctness. At first the sensation experienced is that of ‘a slight pat or throb, sometimes scarcely more than a flutter,’ sometimes a tickling or tremulous motion, resembling that produced by a little bird when held in the hand (Montgomery); but later the motions give rise to sensations more distinct and intense.

The motions of the foetus are not regular, and are not regularly produced by the operation of the same causes. All women do not experience these sensations equally. In some cases all sensation of the motion of the child has been absent from the beginning to the end of pregnancy; in other cases the motions are violent, to such an extent that patients consult us in order to obtain relief from the annoyance and inconvenience they occasion; they sometimes, towards the end of pregnancy especially, occur so uninterruptedly as to prevent the patient from sleeping; and there is usually some one position in taking which the patient is more particularly liable to be troubled with them.

The observation of Hamilton should always be borne in mind, that ‘no

<sup>1</sup> *Op. cit.* p. 146, 2nd ed.



woman ever yet fancied herself pregnant without also persuading herself that she felt the motions of the child.'

In women with *abdominal tumours*, sensations of movement are sometimes present; in cases of ovarian tumour, an irregular pulsatile sensation is sometimes perceived, due, probably, to the pulsations of the aorta or of the great vessels lying behind and pressed upon by the tumours in question. Where the uterus is distended by retention of menstrual fluid, by presence of the ovum in a condition of hydatidiform degeneration, or otherwise, and sensations like those due to motions of a child are present, the cause of the same is probably the contraction of the uterine muscular fibres. Dr. Montgomery relates three cases in which these anomalous sensations of motion were due to presence of 'hydatid pregnancy.' The sensation was different from that experienced in ordinary pregnancy, and was described as a peculiar crawling or sliding sensation.

*Comparative estimate of the value of different signs of pregnancy.*—Perfect evidence of the existence of pregnancy is not obtainable until after the third month, unless in those very rare cases where the foetal heart may be heard just at the end of this time. The evidence obtainable before this date only enables us to come to the conclusion that pregnancy is *probable*. The signs (probable ones) of pregnancy up to this time are—suppression of the menses, swelling of the breasts, descent of the lower part of the uterus in the pelvis, flattening of the abdomen.<sup>1</sup> An examination will not usually enable us to give a positive opinion, if undertaken at this time.

After the end of the third month, during the fourth and fifth, an abdominal and a vaginal examination give, or may give, decisive indications. Menstruation is still absent in ordinary cases; the breasts continue to enlarge, and the areolar changes become developed; the os uteri undergoes its characteristic changes; the uterus can be felt to be enlarged from the vagina and above the pubes; the vagina assumes a dusky hue; the motions of the foetus can be felt by the observer and by the patient; ballottement is recognisable; the sounds of the foetal heart can be heard.

After the fifth month and up to the end of pregnancy, the symptoms just described *continue* and become intensified.

The signs of pregnancy have been divided into three classes by Montgomery—(1) Presumptive; (2) probable; (3) unequivocal. Practically, however, there is no great difference between what is presumptive and what is probable; and if distinctions are to be drawn between shades of belief, the division might be extended *ad infinitum*. It appears quite sufficient to arrange these signs under two classes—(1) the certain, and (2) the probable, signs of pregnancy.

1. The *certain signs of pregnancy* are—

The active movements of the child unequivocally felt by another;

The presence of the child *in utero* ascertained by ballottement;

The sounds produced by the pulsations of the foetal heart.

A positive opinion may be expressed if any one of these be distinctly

<sup>1</sup> This flattening of the abdomen was reckoned by the older authorities as an early sign of pregnancy.

'En ventre plat

Enfant il y a.'

Thus ran the old proverb. Montgomery, *op. cit.* p. 157.

observed, the observer being one experienced in such inquiries, and aware of certain possible sources of fallacy. These latter have been described in the proper place. On the other hand, no positive opinion can be expressed if none of these signs be discoverable, however strongly the observer may feel inclined on other grounds to give his final decision. And as caution should be exercised in this particular, so also caution is necessary in giving an opinion that pregnancy is not present unless the negative evidence be very decisive.

2. *The probable signs of pregnancy* need not be enumerated. They include all those not included under the first head, and to each of them this remark more or less applies—that their value as probable signs of pregnancy is exceedingly different in different cases and at different times; the circumstances of the case may elevate one of these probable signs into the position of a certain one, so far as that case is concerned, but this particular sign may be valueless in the next instance.

## D.

## STERILITY.

General Remarks—Signs of Virility in the Man.

CAUSES OF STERILITY IN THE WOMAN.—1. Mechanical Causes; Condition of Hymen, of Ostium Vaginæ, of Vagina, Presence of Tumours, etc., interfering with Sexual Intercourse; Spasm of Vagina; Conditions of the Uterus, Imperfect Development, Polypi, Flexions, Narrowness of the Uterine Canal, Chronic Inflammation: Diseases of the Ovaries; Altered Conditions of the Fallopian Tubes; Ill-timed Intercourse; Masturbation, Follicular Disease of Vulva; Disease of Rectum.—2. Abnormal Condition of the Secretions; Leucorrhœa, etc.—3. Constitutional or General Causes; Sexual Frigidity; Over-feeding and Luxurious Habits; Obesity; Syphilis.

THERE is hardly any pathological condition of the generative organs of the female which may not, directly or indirectly, have to do with sterility; hence, success in the diagnosis of the cause of sterility involves a wide and comprehensive view of the subject.

The only practical method of treating the subject of the diagnosis of the causes of sterility is to state definitely and systematically what are the possible causes. The following list of these possible causes has been made out chiefly on the basis of facts actually observed and recorded.

The question which naturally first occurs to us in ascertaining the cause of the sterility is, To whom is the infertility to be attributed—the woman or the man?

In some cases, although the testes are apparently sound, the secretion itself is deficient in fertilising power.<sup>1</sup> If the husband be in good health, and have lived temperately, the power of impregnating often exists up to a very advanced period of life; but in those who have, from an early period of life, been addicted to excesses, the sexual power may fail prematurely. In cases of the latter kind, inquiries will readily show the nature of the deficiency.

<sup>1</sup> Mr. Curling contends that in the man an inaptitude to impregnate may coexist with the capacity for sexual intercourse—that, in fact, the man is subject to *sterility* independently of virility. The microscope has been occasionally employed with the view of ascertaining the presence or absence of spermatozoa in the seminal secretion, and it is asserted that they have been found absent in some cases of sterility. (See Dr. Marion Sims's important work on Sterility.) Recent observations appear to show that sterility is more often due to imperfect constitution of the semen than was formerly supposed.



## CAUSES OF STERILITY IN WOMEN.

The first point to which our inquiries tend is as to the patency of the canals through which the spermatic fluid and the ovule must pass in order to come into contact. The vagina, the uterus, the Fallopian tubes, must offer no impediment, or sterility is inevitable.

We may consider the causes of sterility in the woman under the following heads : 1. Mechanical causes ; abnormal condition of some part of the generative passages, such as to interfere with the proper transit of the spermatic fluid or of the ovules. 2. Abnormal conditions of the secretions of the generative passages. 3. Constitutional and general causes.

## 1. MECHANICAL CAUSES OF STERILITY.

(a) *Abnormal conditions of the hymen.*—This membrane is sometimes dense and firm, and effectual intercourse is prevented. Cases in which this condition is met with usually come under our notice owing to a complaint on the part of the husband that intercourse cannot be effected satisfactorily. In some such cases we find on inquiry that the menstrual flow proceeds regularly and without much apparent disturbance ; the hymen is not quite complete, but is perforated at one or more points sufficiently to allow of the passing of the menstrual fluid, but not sufficiently so to allow of perfect intercourse. In such cases, sterility generally, but *not always*, exists ; for it has been found in cases very well authenticated, some of which may indeed be found in Mauriceau,<sup>1</sup> not to cite authorities much more recent, that a nearly perfect hymen does not necessarily prevent fecundation. In some of these cases the hymen has been found so dense and firm at the final termination of pregnancy, as actually to impede parturition. Thus the menstrual phenomena may be present, and yet the hymen may be imperforate in a certain degree. In another class of cases the woman has never menstruated, and the hymen is found complete, absolutely preventing the escape of the menstrual secretion. In some rare cases the hymen is imperforate, but is at the same time yielding, so much so, indeed, as to allow of ordinary intercourse. A case in which the hymen is absolutely imperforate generally arrests attention from the fact that the menstrual flow has never been observed, and in the case of married women, the aid of the practitioner is more frequently called in for this reason than because of the sterility with which it is also associated. The physical examination will always and readily demonstrate the nature of the impediment to fecundation which exists in both of these important classes of cases.

(b) *Narrowness or partial closure of ostium vaginae or vaginal canal.*—The vagina is in rare instances *partially closed* at different parts of its course by bands constituting partial strictures of the canal, and rendering intercourse difficult or incomplete, and so leading to sterility. Such a condition of the canal may be congenital, or it may be brought about in consequence of previous difficult parturition, laceration and cicatrization of the torn part leading to contraction, and to partial, or even complete, closure of the canal. The strictures thus resulting may be low down, at the position of the hymen, or higher up near the os uteri.

<sup>1</sup> *Maladies des Femmes.*

(c) Or the vagina may be *altogether absent*, or constituted by a small cul-de-sac, barely admitting the point of the finger. This condition may be congenital, or may be produced by difficult labour, laceration of the walls of the canal having been followed by cicatrisation and contraction of the same. In the congenital variety, menstruation is absent because of the usually associated absence or defective development of the uterus; in the acquired variety, menstruation may or may not be absent according as the canal is completely closed or not. The canal may be large enough to allow of menstruation occurring, but too small to admit of sexual intercourse, and consequently of impregnation.

(d) *Tumours, etc., interfering with sexual intercourse.*—The aperture of the ostium vaginæ being natural in point of size, sterility may exist because of the presence of a tumour or growth filling up the canal, or so situated as to interfere with efficient sexual intercourse. The presence of an *enlarged clitoris* has been known to have this result.

The canal of the vagina may be occupied by a growth interfering in like manner with intercourse. *Hypertrophy of the cervix uteri* forming a conical tumour sometimes of considerable size, *polypus of the uterus* hanging down into the vagina, or *prolapsus* of the uterus itself, may in particular cases give rise to sterility.

(e) *Spasmodic affection of the ostium vaginæ—vaginal spasm—vaginismus.*—This condition has until recently had hardly a sufficiently prominent place assigned to it in the list of causes of sterility. Its relation to sterility is a very important one. It has excited the attention of Debout, Michon, Marion Sims, and others. The affection has been described in some of the older established text-books. The spasmodic contraction is induced or aggravated by attempts at sexual intercourse. Owing to the extreme sensibility of the parts in the first, and to the mechanical closure of the canal in the second place, sexual intercourse is almost or quite impossible, and there is consequently sterility. The nature of the affection has been discussed in a previous chapter.

(f) *Condition of the uterus.*—*Absence or imperfect development of the uterus* is a cause of sterility the existence of which is only to be substantiated by an internal examination (see 'Examination of the Vagina'). There is a class of cases which comes under the present category, and which is very interesting from a practical point of view—viz. that in which the cervix uteri, or rather the vaginal portion of the cervix is small and somewhat infantile in character, the opening being also small. In many such cases infertility has been observed, and has been remedied by simply incising the os uteri, and thus enlarging the aperture.

Infertility is by no means a necessary consequence of absence of the catamenia. It has been repeatedly proved that women may conceive who have never menstruated; and if it became a question whether marriage was allowable in a particular case, the simple absence of this function could not be considered as *definitively* against the propriety of such a procedure, unless that absence were accompanied by other and more essential sexual deficiencies.

The other conditions on the part of the uterus which may cause sterility will next be enumerated. First are to be considered those cases in which the cavity of the uterus is occupied by tumours—*polypi* of the uterus. The

presence of a polypus, even of a somewhat considerable size, in the uterus, does not necessarily produce sterility. *Fibroid tumours of the uterus* are effectual both in the production of abortion and in the actual prevention of impregnation; when the tumour is situated between the uterine mucous membrane, and encroaching gradually on the uterine cavity, producing a narrowing or partial occlusion of the cavity of that situation, impregnation is prevented. Out of sixty-nine cases of fibroid tumour recorded by Scanzoni, thirty-five had never conceived. According to my own experience, fibroid tumours generally altogether prevent conception.

*Chronic hypertrophy of the uterus*, variously termed, also chronic inflammation of the uterus, 'chronic infarctus,' is a condition unfavourable to fecundity. Scanzoni attributes the sterility of prostitutes to the existence of this alteration. This condition is generally accompanied with congestion and undue fulness of the neighbouring blood-vessels, alike unfavourable to healthy ovulation and to the normal development of the ovum within the uterus.

The form of atresia produced by *flexions of the uterus* is, I believe, by far the most common cause of sterility. This subject has been fully considered in the chapters on 'Flexions' and 'Dysmenorrhœa.' The flexion produces sterility because it prevents the passage of the seminal fluid into the interior of the uterus. The cause of dysmenorrhœa and of sterility is often the same. The frequency with which ante flexion of the uterus is associated with sterility is very great.

The *uterine cervical canal* may be *comparatively very narrow*, the seat of the constriction being either at the upper extremity of the cervical canal, where it joins the body of the uterus, or lower down at the os uteri. And there may be *congenital closure* of the canal at the positions indicated. In cases in which there is actual closure of the canal, the os uteri being imperforate, menstruation is of course absent, and there may be menstrual retention. In cases where there is an opening, but a small one, the symptoms present are, speaking in general terms, those of dysmenorrhœa. The opening is often small, owing to flexion and consequent compression; but when the os is drawn down, and the canal straightened, the sound enters readily enough.

*Conical, or flexed, or elongated condition of the vaginal portion.*—Dr. Marion Sims insists, and I believe correctly, on the influence exerted by an abnormal condition of the canal at its lower portion in the production of sterility. The vaginal portion is sometimes too long, and when this is the case it has a tendency to become curved. This curvature (of the portion of the canal within the vagina, be it understood) is sometimes so great that the long tapering cervix is almost doubled on itself. (See chapters on 'Flexions.') The patency of the canal is thus seriously interfered with, and it is important to bear in mind that dysmenorrhœa is not necessarily associated with flexion of the canal at this point. The vaginal portion should have a certain length, shape, and direction, and a deviation in either of these particulars may lead to sterility.

*Valvular closure of the os.*—This condition arises when one of the lips of the os uteri is considerably larger than the other. The os has then a crescentic shape, and the orifice is virtually less than it should be. Sterility may be associated with it.



The os uteri sometimes *becomes closed*, and sterility arises in consequence of the opposite sides of the canal becoming adherent after being torn. This is now and then a consequence of labour. In some cases it has been produced by the incautious or improper use of caustics.

*Chronic inflammation and induration of the cervix of the uterus* are causes of sterility; the opposite sides of the os are hard, firm, and the opening actually very small, although it may appear to be large. The canal is frequently distorted, and the opposite sides actually touching each other. The sound enters readily, but there is nevertheless less patency of the canal than there should be.

In cases of *dysmenorrhœa* attended with expulsion of a membranous structure at each menstrual period, sterility is very generally observed. (See '*Dysmenorrhœa*.')

(g) *Diseases of the ovaries*.—*Cystic or other tumours of the ovary* prevent conception in many cases where menstruation is still present; but the existence of disease in one ovary, or removal of one ovary by operation, is not incompatible with the occurrence of pregnancy. Disease of the ovaries interferes with the fecundity of the woman, when the due secretion of ovules does not occur, and consequently either no ovules, or ovules in a morbid condition, are conveyed into the Fallopian tubes, in which case, however, menstruation would be expected to be absent, or at all events much disturbed; or when the pressure of large tumours of the ovaries dislocates the uterus, and so disarranges the natural relations of this organ as to prevent both the passage of the ovule downwards and the entrance of the spermatozoa into the uterus.

(h) *Altered conditions of the Fallopian tubes* may prevent the passage of the ovule into the uterus. Peritonitis occasionally produces such *adhesions of the peritoneum covering the pelvic organs* as to render it physically impossible for the ovaries to be grasped by the fimbriated extremities of the Fallopian tubes; thus the 'ovipont' cannot take place. *Atresia*, or closure of the canal, is a condition sometimes met with—a condition of course fatal to impregnation of the ovules from the corresponding ovary. This condition may be combined with *dropsy of the Fallopian tubes*. Fibroid tumours of the uterus occasionally produce occlusion of the Fallopian tubes.

(i) Here may be mentioned a possible cause of sterility, important to bear in mind—*ill-timed sexual intercourse*. It is the fact that women have a much greater aptitude to conceive immediately after the cessation of the menstrual flow, and this, therefore, is the most favourable time for sexual intercourse. It is related that Catherine de Médicis, wife of Henry II. of France, became pregnant after having been sterile for many years, apparently in consequence of following the advice of the physician Fernel, that sexual intercourse should only take place at the time in question.<sup>1</sup> It may turn out on inquiry in particular cases of sterility, that it has been the custom to act in ignorance of this fact.

(k) Under the next head may be included a number of causes occasionally, but by no means necessarily, leading to abortion. Thus, cases in which *masturbation* is practised, cases in which sexual intercourse is allowed to take place *too frequently*, cases in which the vulvar aperture is the seat of

<sup>1</sup> Montgomery, *op. cit.* p. 479.

disease, as in *follicular inflammation of the vulva*, are those coming under this category most deserving of mention. *Diseases of the rectum* have been known to be associated with sterility.

## 2. ABNORMAL CONDITIONS OF THE SECRETIONS OF THE GENERATIVE PASSAGES.

*Leucorrhœa*.—Under ordinary healthy conditions, contact with the secretions of the mucous membrane lining the cervix, the uterus, and the vagina, does not at all impair the vigour and activity of the spermatozoa, in which the power of fertilisation resides; but these secretions may be so altered as to materially affect the activity of the spermatozoa, so as to prevent mechanically, by their viscid and tenacious nature (Dr. Tyler Smith), the passage of these bodies into the cavity of the uterus. The vaginal secretion is naturally acid, the cervical mucus is naturally alkaline; the healthy degree of acidity and alkalinity respectively is not hurtful to the spermatozoa; but it has been shown experimentally that, if the vaginal mucus be too acid, or the cervical mucus be too alkaline, the spermatozoa subjected to the direct influence of these secretions quickly lose their power of motion. The relations of leucorrhœa to sterility have been fully discussed by some late observers, by Dr. Whitehead,<sup>1</sup> Dr. Tyler Smith,<sup>2</sup> and Dr. Marion Sims<sup>3</sup> in particular; and each of these authors cites numerous cases of sterility associated with leucorrhœa, and in which there would seem to be little doubt that the influence of the leucorrhœa in producing the sterility was due, in great part, to the existence of this morbid condition of the secretions.

## 3. CONSTITUTIONAL AND GENERAL CAUSES OF STERILITY.

One of the conditions here to be mentioned is *sexual frigidity*—a want of inclination for sexual intercourse. There can be no question that the connection of this frigidity of temperament with sterility has been much overrated. Women conceive and bear children who evince little or no sexual inclination. This condition is only *necessarily* associated with sterility when the generative apparatus is deficient and imperfectly developed; and no positive deduction can be drawn from such disinclination as to the incompetency of the woman to conceive.

When great *general debility* and *anæmia* are present, it is often the case that conception does not occur. The ovarian function suffers in common with the functions of the body generally, and the woman is not apt to the procreation of children. With anæmia disorder of the menstrual functions frequently, as is well known, coexists; the cases are few in which, menstruation being present, the sterility is dependent on the anæmia.

Another condition, the opposite of that present in anæmia, is more often the cause of sterility—that, namely, produced by *over-feeding* and *luxurious habits*. It is matter of common observation that the labouring classes, amongst whom destitution frequently prevails, are prolific in a degree not witnessed in the higher ranks of society. ‘It is,’ said the late Dr. Marshall Hall, ‘incontrovertibly proved by Mr. Sadler, in his work on the “Law of

<sup>1</sup> *On Abortion and Sterility*.

<sup>2</sup> *On Leucorrhœa*.

<sup>3</sup> *On Sterility*.

Population," that the fecundity of the human race is diminished by the indolent and luxurious mode of life prevalent among the rich, while it is augmented by the labouring habits and spare diet of the poor . . . the proportionate infecundity of the two being, in general terms, as six to one.'<sup>1</sup>

In women who are *unusually fat* an inaptitude to conceive is often observed.

*Syphilis.*—It is well known that the presence of syphilitic disease in either parent is frequently the cause of abortion or of premature birth. It may be questioned, however, whether the presence of syphilis is not occasionally the cause of sterility by destroying the product of conception at so early a period of the pregnancy that the very existence of pregnancy is for that reason unrecognised—the woman being really capable of conceiving, but the product of conception quickly perishing. The effect of syphilitic disease in disturbing the normal growth of the decidua at the commencement of pregnancy has hardly been, as yet, the subject of attention; but it is quite possible that disease of the decidua of a syphilitic character may come hereafter to be a recognised pathological condition. Facts which have come under my own observation have led me to suspect that syphilis may give rise to the effect here alluded to.

*Conclusion.*—In endeavouring to ascertain the cause of the sterility, it will be necessary for the observer carefully to examine into the history and antecedents of the patient, the manner in which menstruation is performed, and the general condition of the bodily health. Further, it will generally be necessary to examine the vagina and the external generative organs, and, if no cause for the sterility be there found, to examine the uterus. In carrying out the examination of the parts in question, the eye and the touch are both to be employed. In investigating the condition of the uterus, the speculum and the uterine sound, one or both, are required.

<sup>1</sup> *On Constitutional Diseases of Female*, 1830, p. 7.





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